
PLANNING COMMISSIONERS

PATRICIA KORZEC
Chairperson

ALVIN DEJOHNETTE
Vice Chairperson

JEFFREY SIMS
Commissioner



RAFAEL BRUGUERAS
Commissioner

VACANT
Commissioner

VACANT
Commissioner

VACANT
Commissioner

PLANNING COMMISSION Regular Meeting

Agenda

Thursday, May 13, 2021 at 7:00 PM

TELECONFERENCED MEETING
[Pursuant to Governor Executive Order N-29-20]

There Will Not Be a Physical Location for Attending the Meeting

The Public May Observe the Meeting and Offer Public Comment As Follows:

STEP 1

Install the Free Zoom App or Visit the Free Zoom Website at [<https://zoom.us/>](https://zoom.us/)

STEP 2

Get Meeting ID Number, Password and On the List to Speak by emailing zoom@moval.org or calling (951) 413-3206, no later than 6:00 p.m. on Thursday, May 13, 2021

STEP 3

Select Audio Source

Computer Speakers/Microphone

or

Telephone

STEP 4

Public Comments May be Made Via Zoom

During the Meeting, the Mayor Will Explain the Process for Submitting Public Comments

ALTERNATIVE

If you do not wish to make public comments, you can view the meeting on Channel MVTV-3, the City's website at www.moval.org or YouTube

Upon request, this agenda will be made available in appropriate alternative formats to persons with disabilities, in compliance with the Americans with Disabilities Act of 1990. Any person with a disability who requires a modification or accommodation in order to participate in a meeting should direct such request to the ADA Coordinator, at 951.413.3120 at least 72 hours before the meeting. The 72-hour notification will enable the City to make reasonable arrangements to ensure accessibility to this meeting.

CALL TO ORDER

ROLL CALL

PLEDGE OF ALLEGIANCE

APPROVAL OF AGENDA

PUBLIC COMMENTS PROCEDURE

During the public comment period for each item, as well as during the public comment period for items not on the agenda, the clerk will call upon each person who is on the Zoom application that has requested to speak. Each member of the public wishing to speak will have a maximum of 3 minutes to speak on any agenda item, except for the applicant for entitlement. The Commission may establish an overall time limit for comments on a particular Agenda item. Members of the public must direct their questions to the Chairperson of the Commission and not to other members of the Commission, the applicant, the staff, or the audience. Those wishing to speak should follow the teleconference procedures. If you are absent at the time your name is called, you will forfeit the opportunity to speak on the items.

PUBLIC COMMENTS

CONSENT CALENDAR

All matters listed under Consent Calendar are considered to be routine and non-controversial, and may be enacted by one roll call vote. There will be no discussion of these items unless a member of the Planning Commission requests that an item be removed for separate action.

- 1. Planning Commission Minutes – Regular Meeting – April 8, 2021 7:00 PM

NON-PUBLIC HEARING ITEMS

- 1. Case: Proposed Capital Improvement Plan Fiscal Years 2021/22 – 2022/23 Conformance with the General Plan.
- Applicant: City of Moreno Valley
- Department: Public Works Department
- Location: Various Locations Throughout the City of Moreno Valley
- Council District: City-wide
- Proposal: The proposal is for a determination that the Capital Improvement Plan is in conformance with the City’s General Plan.

PUBLIC HEARING ITEMS

- 1. Case: PEN19-0057 – Master Plot Plan
PEN19-0058 – Plot Plan
PEN19-0059 – Conditional Use Permit

- Applicant: Parmjit Singh

- Property Owner: Parmjit Singh

- Representative: Brian Lowell

- Location: 14058 Redlands Boulevard (southeast corner Redlands Blvd. and Alessandro Blvd.)

- Case Planner: Jeff Bradshaw

- Council District: 3

- Proposal: The Applicant is requesting approval of the following entitlements for a 2.6 acre site: 1) Master Plot Plan for the expansion of the existing Farm Market site to include a new multi-tenant retail building and vehicle service station with 4 fuel pumps and 8 fueling stations; 2) Plot Plan for the building of a new 3,850 square foot multi-tenant retail development which is intended to provide space for a restaurant and a retail store; and 3) a Conditional Use Permit for a new vehicle service station use.

OTHER COMMISSION BUSINESS

No items for discussion.

STAFF COMMENTS

PLANNING COMMISSIONER COMMENTS

ADJOURNMENT

Planning Commission Regular Meeting, May 27, 2021 at 7:00 P.M., City of Moreno Valley, City Hall Council Chamber, 14177 Frederick Street, Moreno Valley, CA 92553.

OFFICIAL MINUTES OF THE
PLANNING COMMISSION
OF THE CITY OF MORENO VALLEY

REGULAR MEETING – 7:00 PM
April 8, 2021



TELECONFERENCED MEETING
[Pursuant to Governor Executive Order N-29-20]

There Will Not Be a Physical Location for Attending the Meeting

The Public May Observe the Meeting and Offer Public Comment As Follows:

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STEP 2

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STEP 4

Public Comments May be Made Via Zoom

During the Meeting, the Chairperson Will Explain the Process for Submitting Public Comments

ALTERNATIVE

If you do not wish to make public comments, you can view the meeting on Channel MVTV-3, the City's website at www.moval.org or YouTube

Minutes Acceptance: Minutes of Apr 8, 2021 7:00 PM (CONSENT CALENDAR)

CALL TO ORDER

This Regular meeting of the Planning Commission of the City of Moreno Valley was called to order at 7:04 p.m., by Chairperson Korzec in the Council Chambers located at 14177 Frederick Street, Moreno Valley, California.

ROLL CALL

Planning Commission:	Patricia Korzec	Chairperson	Present
	Alvin DeJohnette	Vice Chairperson	Present
	Rafael Brugueras	Commissioner	Present
	Jeffrey Sims	Commissioner	Present

PLEDGE OF ALLEGIANCE

The Pledge of Allegiance was led by Commissioner Sims.

APPROVAL OF AGENDA

Motion to approve the agenda was made by Commissioner DeJohnette and seconded by Commissioner Brugueras.

Vote: 4-0

Ayes: Commissioner DeJohnette, Brugueras, Sims and Chairperson Korzec

Action: **Approved**

SELECTION OF CHAIRPERSON AND VICE CHAIRPERSON

1. Accept Nominations for and Elect a New Chairperson.

Nomination made by Commissioner DeJohnette to nominate Patricia Korzec to serve as Chairperson to the Planning Commission.

Vote: 4-0

Ayes: Commissioner Brugueras, DeJohnette, Sims and Chairperson Korzec

Action: **Approved**

2. Accept Nominations for and Elect a New Vice-Chairperson.

Nomination made by Commissioner Brugueras and seconded by Commissioner Sims to nominate Alvin DeJohnette to serve as Vice Chairperson to the Planning Commission.

Vote: 4-0

Ayes: Commissioner Brugueras, DeJohnette, Sims and Chairperson Korzec

Action: **Approved**

PUBLIC COMMENTS PROCEDURE

PUBLIC COMMENTS

No public comments.

CONSENT CALENDAR

1. Planning Commission - Regular Meeting - March 11, 2021 7:00 PM

Motion to approve the minutes of March 11, 2021 was made by Commissioner Brugueras and seconded by Commissioner Sims.

Vote: 4-0

Ayes: Commissioner Brugueras, Vice Chairperson DeJohnette, Sims and Chairperson Korzec

Action: **Approved**

NON-PUBLIC HEARING ITEMS

No items for discussion.

PUBLIC HEARING ITEMS

1. Amended Conditional Use Permit to expand an approved cannabis dispensary from 1,400 square feet to 2,373 square feet and Class 32 CEQA Exemption. (Report of: Planning Commission)

A. Staff recommends that the Planning Commission APPROVE Resolution No. 2021-12, and thereby:

1. DETERMINE that Amended Conditional Use Permit PEN20-0214 is categorically exempt from the provisions of the California Environmental Quality Act (CEQA) as a Class 32 Exemption (Section 15332, In-Fill Development Projects); and
2. APPROVE Amended Conditional Use Permit PEN20-0214 subject to the attached Conditions of Approval as Exhibit A to the Resolution.

Public Hearing Opened: 7:23 pm

Speakers

No public speakers

Public Hearing Closed: 7:25 pm

Motion to approve Resolution Number 2021-12 was made by Vice Chairperson DeJohnette and seconded by Commissioner Brugueras.

Vote: 4-0

Ayes: Commissioner Brugueras, Vice Chairperson DeJohnette, Commissioner Sims and Chairperson Korzec

Action: **Approved**

2. Conditional Use Permit for a 2,500 square foot retail cannabis Dispensary located within an existing 7,000 square foot retail building at 24515 Alessandro Boulevard, Suite B and Class 32 CEQA Exemption. (Report of: Planning Commission)
 - A. Staff recommends that the Planning Commission APPROVE Resolution No. 2021-23, thereby:
 1. DETERMINING that Conditional Use Permit PEN19-0068 is categorically exempt from the provisions of the California Environmental Quality Act (CEQA) as a Class 32 Exemption (Section 15332, In-Fill Development Projects); and
 2. APPROVING Conditional Use Permit PEN19-0068 subject to the attached Conditions of Approval included as Exhibit A to the Resolution.

Public Hearing Opened: 7:40 pm

Speakers
Roger Kim

Public Hearing Closed: 7:43 pm

Motion to approve Resolution Number 2021-23 was made by Commissioner Sims and seconded by Commissioner Brugueras.

Vote: 4-0
 Ayes: Commissioner Brugueras, Vice Chairperson DeJohnette, Commissioner Sims and Chairperson Korzec
 Action: **Approved**

OTHER COMMISSION BUSINESS

No items for discussion.

STAFF COMMENTS

Patty Nevins, Planning Official, reminded everyone of the upcoming Comprehensive General Plan update and that the Draft General Plan, associated Environmental Impact Report and Climate Action Plan are available for public review via a link on the City's website. She encouraged everyone to review as you will be seeing it in the very near future.

PLANNING COMMISSIONER COMMENTS

Commissioner Sims stated that the Mayor put something on the City's website for the collaboration with Cal-Trans and it may be time for a call due to the new encampments along the 60 freeway. He also noted his first hike to the "M" Mountain and the trail to the view up top Lake Perris. The City does a great job maintaining these trails and they are a great asset to the City.

ADJOURNMENT

There being no further business to come before the Planning Commission, Chairperson Korzec adjourned the meeting at 7:53 PM.

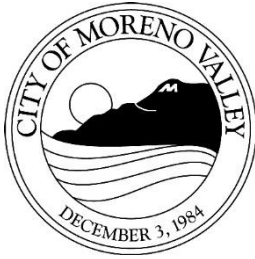
Submitted by:

Approved by:

Ashley Aparicio
Planning Commission Secretary

Patricia Korzec
Chairperson

Minutes Acceptance: Minutes of Apr 8, 2021 7:00 PM (CONSENT CALENDAR)



PLANNING COMMISSION

STAFF REPORT

Meeting Date: May 13, 2021

REVIEW OF THE PROPOSED CAPITAL IMPROVEMENT PLAN FISCAL YEAR 2021/22 - 2022/23 FOR A FINDING OF CONFORMANCE WITH THE CITY'S GENERAL PLAN

Case: Proposed Capital Improvement Plan Fiscal Years 2021/22 – 2022/23 Conformance with the General Plan

Applicant: City of Moreno Valley

Department: Public Works Department

Location: Various Locations Throughout the City of Moreno Valley

Council District: City-wide

Proposal: The proposal is for a determination that the Capital Improvement Plan is in conformance with the City's General Plan

SUMMARY

City staff is producing an updated Capital Improvement Plan (CIP) for Fiscal Years 2021/22 – 2022/23 ("Proposed CIP"), for review and approval by the City Council. In order to adopt the Proposed CIP, the City Council must find that the proposed CIP is consistent with AB 1600, the California Mitigation Act. Government Code Section 65103(c) also requires that each local planning agency (i.e., Planning Commission) review the capital improvement program of the City for consistency with the General Plan. Therefore, prior to City Council consideration and action, the document requires review by the Planning Commission in order to make the requisite finding that the Proposed CIP is in conformance with the City of Moreno Valley's General Plan.

PROJECT DESCRIPTION

The purpose of the Proposed CIP is to identify the various capital improvement projects and set forth the funding strategy for Fiscal Years 2021/22 – 2022/23. The Proposed CIP also establishes a capital improvement plan for the next five years and beyond, to build-out, as referenced in the General Plan's Land Use and Circulation Elements. The components of the Proposed CIP have been grouped by categories and by fund. The Proposed CIP includes a detailed project sheet for every CIP improvement project that is fully funded or partially funded with fund requests for Fiscal Years 2021/22 – 2022/23. All of the capital improvements were provided with an estimate of total project cost and the anticipated fiscal year of construction were identified for each respective improvement.

The CIP is designed to be a five year progressive document that will be subject to possible revisions every two years, as part of the budget adoption process. The Proposed CIP begins with the Fiscal Years 2021/22 – 2022/23 and extends to "FYs 2025-2026 and Beyond." All projects listed in the "FYs 2025-2026 and Beyond" timeframe are typically unfunded and will be brought forward for the City Council's consideration as the particular community need for the respective CIP project arises.

The streets, bridges, buildings, drainage facilities, electrical utilities, landscaping and traffic signals listed in the Proposed CIP Fiscal Years 2021/22 – 2022/23 are consistent with the General Plan. The parks projects listed meet the three acres per one thousand population standard set forth in the General Plan.

REVIEW PROCESS

Staff has had numerous meetings with all City Departments since December 2020 in an effort to prepare a complete capital budget and Proposed CIP for Fiscal Years 2021/22 – 2022/23. The Proposed CIP has been available for public review since May 6, 2021. The Proposed CIP, if found by the Planning Commission to be consistent with the City of Moreno Valley's General Plan, is tentatively scheduled to be presented to the City Council on June 1, 2021 for adoption as part of the City's Fiscal Years 2021/22 – 2022/23 Budget.

ENVIRONMENTAL

The Proposed CIP is not a "project" as defined under the California Environmental Quality Act (CEQA) in that the proposal is a fiscal activity that does not in itself involve a commitment by the City to construct any specific project that may result in a potentially significant physical impact on the environment (Section 15378(b) (4) of the CEQA Guidelines). Each individual activity implemented by the CIP will be evaluated under CEQA to determine if the activity is a project under CEQA, and if determined to be a project, subsequent environmental review consistent with CEQA will be completed prior to project implementation.

NOTIFICATION

Publication of the Planning Commission Agenda

STAFF RECOMMENDATION

Staff recommends that the Planning Commission APPROVE Resolution 2021-14 and thereby find that the Proposed CIP for Fiscal Years 2021/22 – 2022/23 is in conformance with the City of Moreno Valley’s General Plan.

Prepared by:
Ashley Aparicio
Administrative Assistant

Approved by:
Patty Nevins
Planning Official

ATTACHMENTS

1. Resolution No. 2021-14 - CIP FY's 2021/22 - 2022/23
2. Exhibit A - Proposed CIP FYs 2021/22 - 2022/23

RESOLUTION NO. 2021-14

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF MORENO VALLEY, CALIFORNIA, FINDING THAT THE PROPOSED CAPITAL IMPROVEMENT PLAN FYS 2021/22 – 2022/23 IS CONSISTENT WITH THE GENERAL PLAN

WHEREAS, Government Code Section 65103(c) requires that the Planning Commission review the City’s Capital Improvement Plan (CIP) for consistency with the City’s adopted General Plan; and

WHEREAS, at its regular meeting of May 13, 2021, the Planning Commission reviewed the City of Moreno Valley’s Proposed Capital Improvement Plan FYS 2021/22 – 2022/23 and considered whether it is consistent with the City’s General Plan and accepted public testimony thereon.

NOW, THEREFORE BE IT RESOLVED, the Planning Commission of the City of Moreno Valley does hereby find that based on review of the City’s General Plan and all of the elements, polices and objective contained therein the City of Moreno Valley’s Proposed Capital Improvement Plan FYS 2021/22 – 2022/23, Exhibit A, is consistent with the City of Moreno Valley’s General Plan.

APPROVED AND ADOPTED at a regular meeting of the Planning Commission of the City of Moreno Valley, California, held on the 13th day of May, 2021.

CITY OF MORENO VALLEY
PLANNING COMMISSION

Patricia Korzec, Chairperson

ATTEST:

Patty Nevins,
Planning Official

APPROVED AS TO FORM:

Steven B. Quintanilla,
Interim City Attorney

Attached:
Exhibit A – Proposed CIP FYS 2021/22 - 2022/23

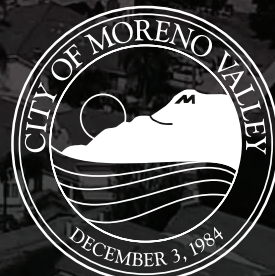
Attachment: Resolution No. 2021-14 - CIP FY's 2021/22 - 2022/23 (4417 : Capital Improvement Plan Fiscal Years 2021/22 - 2022/23)

P R O P O S E D



CAPITAL IMPROVEMENT PLAN

fiscal years 2021/22 & 2022/23



Attachment: Exhibit A - Proposed CIP FYs 2021/22 - 2022/23 (4417 : Capital Improvement Plan Fiscal Years 2021/22 - 2022/23)



P R O P O S E D



CAPITAL IMPROVEMENT PLAN

fiscal years 2021/22 & 2022/23

CITY COUNCIL

Dr. Yxstian A. Gutierrez
MAYOR

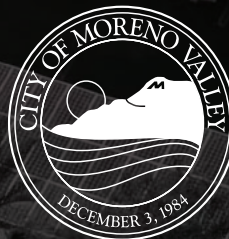
Victoria Baca
MAYOR PRO TEM

David Marquez
COUNCIL MEMBER

Ulises Cabrera
COUNCIL MEMBER

ADMINISTRATION

Mike Lee
CITY MANAGER



PREPARED BY THE PUBLIC WORKS DEPARTMENT
14177 Frederick Street Moreno Valley, CA 92552-0805
951.413.3130 | moval.org

Attachment: Exhibit A - Proposed CIP FYs 2021/22 - 2022/23 (4417 : Capital Improvement Plan Fiscal Years 2021/22 - 2022/23)



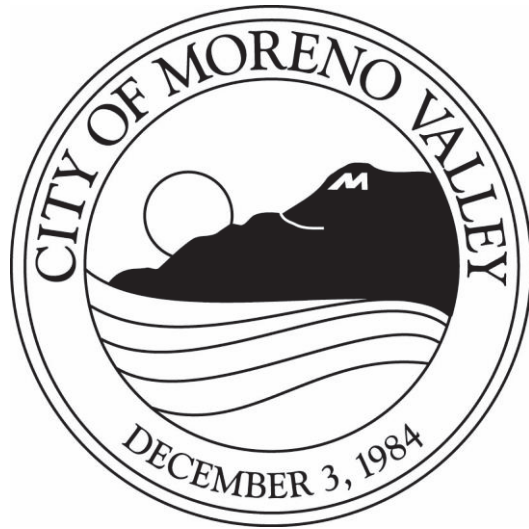
CITY OF MORENO VALLEY
Capital Improvement Plan
Fiscal Years 2021/22 & 2022/23

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Attachment: Exhibit A - Proposed CIP FYs 2021/22 - 2022/23 (4417 : Capital Improvement Plan Fiscal Years 2021/22 - 2022/23)

CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond



INTRODUCTION

PROPOSED CAPITAL IMPROVEMENT PLAN

fiscal years 2021/22 & 2022/23

Attachment: Exhibit A - Proposed CIP FYs 2021/22 - 2022/23 (4417 : Capital Improvement Plan Fiscal Years 2021/22 - 2022/23)



CITY MANAGER'S MESSAGE

PROPOSED CAPITAL IMPROVEMENT PLAN

fiscal years 2021/22 & 2022/23

Attachment: Exhibit A - Proposed CIP FYs 2021/22 - 2022/23 (4417 : Capital Improvement Plan Fiscal Years 2021/22 - 2022/23)





To: Honorable Mayor, Mayor Pro Tem, Members of the City Council, and Residents of Moreno Valley

INTRODUCTION

On behalf of the City of Moreno Valley staff, I am pleased to transmit the Fiscal Year (FY) 2021/22 & FY 2022/23 Capital Improvement Plan (CIP). You will find this CIP has been developed with a thoughtful balance between the infrastructure needs of the community and the City's financial capacity.

In August 2016, the City Council adopted *Momentum MoVal*, Moreno Valley's first strategic plan. One of the six critical priorities identified by our community stakeholders and adopted by the City Council includes addressing our infrastructure needs:

Infrastructure: Manage and maximize Moreno Valley's public infrastructure to ensure an excellent quality of life, develop and implement innovative, cost effective infrastructure maintenance programs, public facilities management strategies, and capital improvement programming and project delivery.

--Momentum MoVal

City staff identifies the community's capital needs for each fiscal year, evaluates anticipated funding availability, and presents a proposed CIP for the City Council's consideration and direction to staff. Capital planning represents an ongoing investment in the City's future to ensure the timely repair and replacement of aging infrastructure, and the implementation of priorities to meet the demands of our community.

The document includes recommended improvements and new budget requests, which require Council approval to move forward on the FYs 2021/22 & 2022/23 program years. It also includes expenditure estimates for future projects, which are currently unfunded. The new budget requests for FYs 2021/22 & 2022/23 are summarized by category as depicted in Table 1 and Figure 1:

FYs 2021/22 & 2022/23 Capital Budget Category Overview			
Category	FY 2021/22 New Request	FY 2022/23 New Request	Total
Streets and Highways	\$4,235,000	\$4,185,000	\$8,420,000
Bridges	\$10,000	\$10,000	\$20,000
Buildings	\$3,658,705	\$838,705	\$4,497,410
Drainage	\$1,880,000	\$80,000	\$1,960,000
Electric Utility	\$1,489,536	\$5,300,900	\$6,790,436
Landscaping	\$1,915,000	\$1,035,000	\$2,950,000
Parks	\$2,455,000	\$197,000	\$2,652,000
Traffic Signals	\$400,000	\$100,000	\$500,000
Total	\$16,043,241	\$11,746,605	\$27,789,846

Table 1

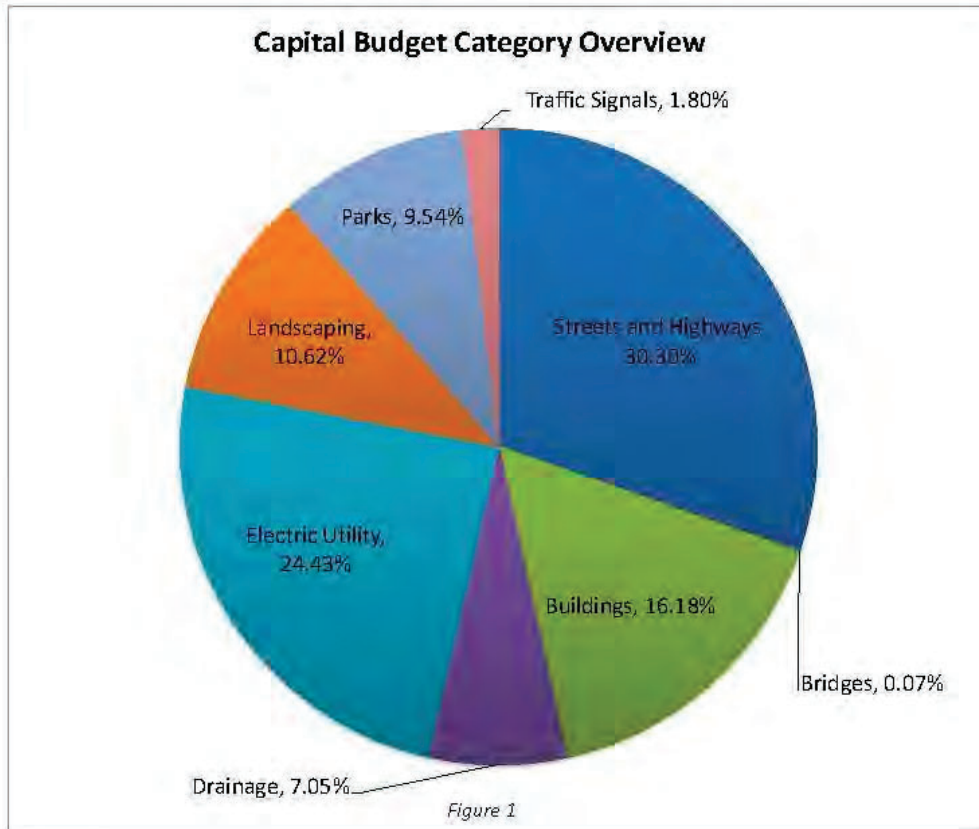


Figure 1

The CIP identifies projects required through the ultimate General Plan build-out of the City, which includes approximately \$1.56 billion for 301 projects to improve and maintain the City's infrastructure. The CIP includes \$20.7 million in fully funded projects and \$106.5 million in partially funded projects. The largest requested CIP increase, for streets and highways, is funded in significant part by restricted funds and/or one-time grants, allowing the City to address street maintenance needs.

This document includes a detailed project sheet for each capital project. The purpose of the detail sheets is to provide a summary view of each project in the CIP, including a project description, justification, expenditure, future annual operating and maintenance costs, and project location map, among other detailed information.

This document is published every two years to include new capital projects and is adopted in coordination with the City's two-year budget cycle. With each revision, unless otherwise directed by the City Council, previously approved projects remain and are carried over as part of the document until the project or designated project phase is complete. The CIP also includes information about completed projects (a total of 38 projects in the past two years) and deleted projects with applicable justifications for removal.

As a component of the City's budget adopted by the City Council, the CIP was presented to the Finance Sub-Committee on April 27, 2021 and was recommended to move forward to Council. The CIP was also presented to the Planning Commission on May 13, 2021 and was found to be in conformance with the City's General Plan.

CAPITAL BUDGET OVERVIEW

The FYs 2021/22 & 2022/23 CIP budget includes \$27.8 million in new capital requests. Table 2 and Figure 2 provide a summary of appropriations for capital projects by funding source.

FYs 2021/22 & 2022/23 Capital Budget Fund Overview

Fund	FY 2021/22 New Request	FY 2022/23 New Request	Total
Air Quality Management	\$20,000	\$20,000	\$40,000
Community Facility District No. 2014-01	\$0	\$50,000	\$50,000
Community Facility District No. 1	\$80,000	\$72,000	\$152,000
Electric - Restricted Assets	\$1,489,536	\$5,300,900	\$6,790,436
Facility Construction	\$2,924,986	\$808,705	\$3,733,691
Gas Tax	\$4,385,000	\$4,135,000	\$8,520,000
LMD 2014-02 Landscape Maint Dist	\$600,000	\$425,000	\$1,025,000
Measure A	\$140,000	\$140,000	\$280,000
Parks & Community Services (Parkland)	\$2,125,000	\$0	\$2,125,000
Parks & Community Services (Quimby)	\$450,000	\$155,000	\$605,000
Public Works General Capital Projects	\$1,800,000	\$0	\$1,800,000
Storm Water Management	\$80,000	\$80,000	\$160,000
Traffic Mitigation	\$100,000	\$0	\$100,000
Zone A Parks	\$533,719	\$0	\$533,719
Zone D Standard Landscape	\$996,000	\$500,000	\$1,496,000
Zone E Extensive Landscape	\$51,000	\$0	\$51,000
Zone M Medians	\$268,000	\$60,000	\$328,000
Total	\$16,043,241	\$11,746,605	\$27,789,846

Table 2

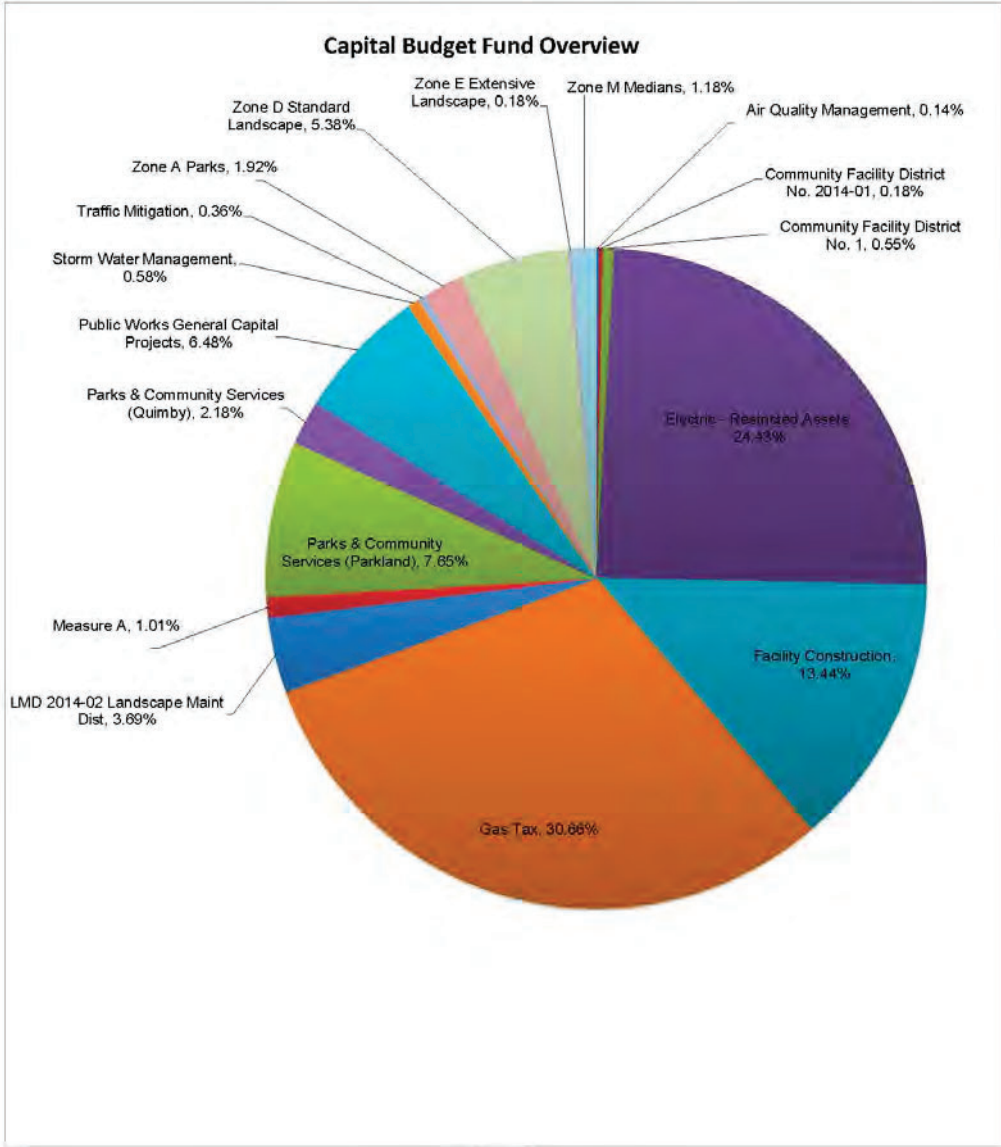


Figure 2

CAPITAL IMPROVEMENT PLAN HIGHLIGHTS

Highlights of the capital improvement projects presented to City Council are listed below:

- ❖ The State Route (SR) 60/Moreno Beach Drive Interchange Phase 2 project will increase capacity by replacing the existing two-lane bridge over SR-60 with a wider bridge, reconfiguring the westbound ramps, and adding a west bound auxiliary lane on the freeway. Drainage systems including upstream pipes in Ironwood Ave will be included as part of the construction. In December 2020, California Transportation Commission approved funding allocation in the total of \$16.8 million for the interchange project construction (70% of construction cost). In FY 21/22 and 22/23, the focus will be completing the project construction.
- ❖ The Citywide Pavement Rehabilitation Program (FY 2019/20). This project will provide pavement rehabilitation and preservation for approximately 18 arterial and collector street segments citywide. The construction was completed in March 2021. The Citywide Pavement Rehabilitation Program (FY 2020/21) will provide pavement rehabilitation and preservation for approximately 13 arterial/collector and 47 local street segments citywide. The construction is scheduled for completion in March 2022. Both projects are funded by Senate Bill 1 (SB 1).
- ❖ The Pavement Rehabilitation for Various Local Streets (CDBG FY 2020/21). This project will provide pavement rehabilitation for various local streets in the CDBG target areas. Rehabilitation includes the removal and replacement of pavement surface as well as crack sealing and applications of slurry seal to extend the service life of the street pavement. The construction is anticipated to be completed by December 2021. This project is funded by a Community Development Block Grant (CDBG).
- ❖ Grand Valley Ballroom Patio Lighting. New LED lighting will be added to the patio just outside the Grand Valley Ballroom located at the CRC, to allow for evening events/rentals at the patio and to enhance evening programming at the Amphitheater. The lighted patio may be used for vendors, VIPs, or as a refreshment area. The patio is currently not lighted and the additional of lighting will expand its use beyond daylight hours.
- ❖ Main Library Renovation (Design). This design project is the first step toward renovation of the Main Library for ADA improvements and enhanced public and civic used. Design ideas include STEM space, makerspace, a computer lab, gaming area, study areas, etc. The renovation of the Main Library will expand opportunities for education and recreation and allow for a more customized, personal library experience.

- ❖ Sunnymead - Flaming Arrow Drive Storm Drain. This project will install a storm drain system in Flaming Arrow Drive and Sweet Grass Drive, between Saint Christopher Lane and Bay Avenue. The purpose is to mitigate flooding in the area and to convey flows to the existing Sunnymead Master Drainage Plan line in Bay Avenue. Approximately 1200 linear feet of 24-inch diameter pipe will be installed. The project design, right-of-way, environmental clearance, utility notifications, and advertisement were a joint effort by the City and Riverside County Flood Control and Water Conservation District. The project is funded by Community Development Block Grant, Riverside County Flood Control and Water Conservation District (Public Works Capital Projects, and Measure A.
- ❖ iS5 Network Cyber Security. This project will implement a cyber security strategy, including installation of hardware, software, processes, and procedures to prevent and monitor potential cyber threats and restoration in response to intrusions. This project will enable MVU to monitor and report any potential cyber security intrusions that could affect the operation of the utility. The estimated project completion date is June 2022.
- ❖ Morrison Park Ball Field Lighting LED Retrofit. This project will replace existing metal halide lighting with energy efficient LED lights for the ball fields. LED lighting will improve the quality of illumination and help enhance the experience of field users during evening/night play.
- ❖ Pump Track at March Field Park. This project will provide for a pump track at March Field Park. A pump track bicycle-riding course is a looped sequence of banked turns that are designed to be ridden by riders “pumping” and generating momentum by up and down body movements rather than pedaling. This project will include an adaptive park feature to allow very young riders to participate and will bring a new and unique experience to Moreno Valley, for use by all ages and skill levels, and for regional/national competitions. This design-build project is scheduled to kick-off in August 2021 with construction ending in April 2022.
- ❖ South Lasselle Street Safety Corridor. The project consists of installing a high-friction surface treatment at the southernmost curve on Lasselle Street, from Avenida Classica to Camino Quintana, to reduce run-off-the-road collisions; and upgrading the traffic signals on Lasselle Street from College Drive to the south city limit (7 signals) to discourage speeding in low volume conditions. The project purpose involves the deployment of Rest-in-Red technology which provides for red lights for those vehicles traveling above the speed limit. Upgraded traffic cabinets and related equipment will be installed to support the technology. This project is fully funded by the federal Highway Safety Improvement Program administered through Caltrans.

Projects Previously Approved / In Progress

- ❖ The Juan Bautista de Anza Multi-Use Trail from El Potrero Park to Lake Perris State Recreation Area (SRA) – ATP 3. This project construct bicycle and pedestrian path segments of the Juan Bautista de Anza Multi-Use Trail from El Potrero Park to Lake Perris State Recreation Area. Construction of the trail will provide improved safety and mobility for trail users and expand recreational opportunities for Moreno Valley's residents to Lake Perris State Recreational Area. The City received an Active Transportation Program Cycle 3 grant for design and construction of the trail. The focus of the project for FY 2021/22 & 2022/23 will be on completing the trail construction. The project is part of the Momentum MoVal Strategic Plan.
- ❖ The Juan Bautista De Anza Multi-Use Trail from Moreno Valley Mall to Iris Avenue - ATP 4. This project will construct several bicycle and pedestrian path segments of the Juan Bautista de Anza Multi-Use Trail from Moreno Valley Mall to Iris Avenue. The City received the State's Active Transportation Program (ATP) Cycle 4 grant of \$8.4 million for the design and construction. Design will be completed by end of 2021. The focus of the project for FY 2021/22 & 2022/23 will be on completing the trail construction. The project is part of the Momentum MoVal Strategic Plan.
- ❖ Electronic Marquee Sign. Installation of an electronic LED marquee sign is in progress at the intersection of Alessandro Boulevard and Frederick Street, near the CRC. The marquee sign will be used to advertise Parks & Community Services events and for general citywide announcements/public information. The sign is scheduled to be complete in August 2021.
- ❖ Electrical System Automation. This project will implement automation, communication, and protection within electrical circuits that serve critical customers in the electrical distribution system. Benefitting electrical circuits are located throughout the City and include Redlands 12kV, Cottonwood 12kV, Eucalyptus 12kV, Lasselle 12kV, Nason 12kV, March 12kV, Modular 12kV, Edwin 12kV, San Michele 12kV, and Perris 12kV. The purpose of this project is to provide greater reliability for MVU customers and provide greater flexibility for MVU in the management of the electrical distribution system. The estimated project completion date is June 2022.
- ❖ Eucalyptus Avenue Line Extension. This project will install new electrical backbone facilities including conduit, cable, underground structures, pad mounted equipment switchgear, and splicing components. The installation will extend distribution cable on Eucalyptus Avenue between Day Street and Memorial Way and on Memorial Way between Eucalyptus Avenue and Gateway Drive in order to provide electrical service to remaining vacant parcels at the Towngate Center. The estimated project completion date is December 2021.

- ❖ **Demonstration Garden.** The Demonstration Garden project features elements such as raised planter beds, tower/wall planters, vermiculture, composting, shade shelters, and several different types of pavers. The City received Per Capita funding from the California Park and Recreation Department and a grant from Kaiser Permanente to help fund this project. The Garden is scheduled to be completed in Fall 2021.
- ❖ **Guardrail Upgrades at Various Locations.** The project consists of the removal of existing outdated metal guardrails and installation of approximately 4,960 feet of new guardrails with standard height and end treatments at twenty (20) locations citywide. The project also includes the installation of traffic signs and delineators along the new guardrails to meet federal and local requirements. In this project, guardrails are generally installed along the edge of pavement to reduce the severity of run-off-road collisions or into steep slopes or drainage ditches. Guardrails are also installed as a safety barrier in front of fixed objects such as utility poles, bridge piers, and storm drain headwalls, when installed per recommended standards. They help lessen the severity of potential crashes and make roads safer. The construction was completed in December 2020.
- ❖ **Moreno Valley Ranch and Pigeon Pass Road ITS.** These projects will retrofit fifteen (15) signalized intersections with Intelligent Transportation Systems (ITS) equipment, including new fiber optic cable, closed circuit television (CCTV) cameras and new controller cabinets, to allow for remote monitoring and control from the City's Transportation Management Center.
- ❖ **Pedestrian Hybrid Beacon on Cactus Avenue at Woodland Park.** This project installs a pedestrian hybrid flashing beacon system on Cactus Avenue and Redwing Drive in front of Woodland Park to enhance safety for pedestrians and vehicles. The hybrid flashing beacon system provides positive control for pedestrians wishing to cross Cactus Avenue to enter the park. Pedestrians would press a push button located on the traffic signal pole to turn on red lights to stop traffic and use the proposed marked crosswalk to safely cross Cactus Avenue. The construction was completed in March 2021.

CONCLUSION

Moreno Valley is a dynamic city that continues to place high demands for capital improvements. The CIP, a "living document" that serves as a planning guide, can be adjusted as existing projects change, new needs, and priorities arise. This comprehensive CIP describes approximately \$1.56 billion in capital projects through the build-out of the City. Staff will continue to pursue funding alternatives and identify priorities for Council's consideration in order to deliver projects that meet the needs of the City and the region.

In closing, I would like to express my sincere appreciation to all City Departments for their help in preparing this complex and dynamic document. Preparing the CIP document is really a team effort. The City's previous CIP document received an award from the California

Society of Municipal Finance Officers and we believe our new CIP budget will compete well for a future award.

Capital Improvement Plan Preparation Team

Michael L. Wolfe, PE, Assistant City Manager/Public Works Director/City Engineer
Brian Mohan, Acting Assistant City Manager/Chief Financial Officer/City Treasurer
Henry Ngo, PE, Capital Projects Division Principal Engineer
Josh Frohman, PE, Associate Engineer
Launa Jimenez, Senior Management Analyst
Gail Smerkol, Management Aide
Evan Ismail, Transportation Division Intern
Gordon MacDonald, Applications and Database Administrator
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Larry Jaime, Senior Graphics Designer

Respectfully Submitted,

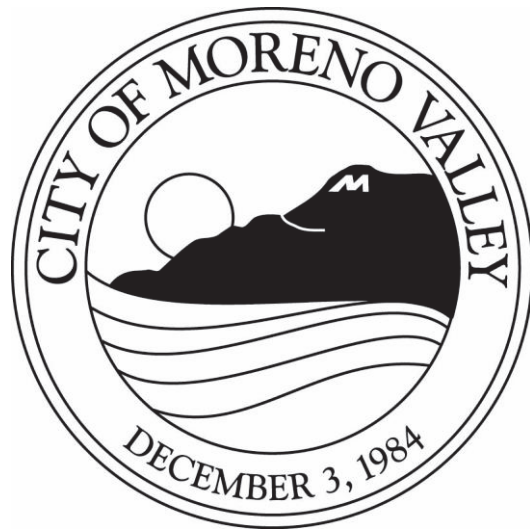


Mike Lee
City Manager



The California Society of Municipal Finance Officers (CSMFO) presented the *Capital Budget Excellence Award* to the City for its CIP budget prepared for FYs 2019/20 & 2020/21. In order to receive this award, a governmental unit must publish a capital budget document that meets the criteria as established by CSMFO.

CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond





CAPITAL IMPROVEMENT PLAN

O V E R V I E W

PROPOSED
CAPITAL IMPROVEMENT PLAN

fiscal years 2021/22 & 2022/23

Attachment: Exhibit A - Proposed CIP FYs 2021/22 - 2022/23 (4417 : Capital Improvement Plan Fiscal Years 2021/22 - 2022/23)



Capital Improvement Plan Overview

Introduction

The City of Moreno Valley's Capital Improvement Plan (CIP) is an important planning and managing tool for the City's growth and development, as well as a strategy for the maintenance of existing infrastructure. The CIP is a comprehensive, five-year plan for maintaining and enhancing public infrastructure by constructing new facilities and maintaining and repairing current facilities. This strategic document provides a forecast of community infrastructure needs, their estimated costs, and the financial capacity of the City over the five-year period.

The development of the City's Capital Improvement Plan is one of the more complex and multifaceted processes in the City. The CIP contains both a capital budget and a capital program. The capital budget denotes the spending plan for the upcoming two-year budget cycle. The capital program provides a plan for capital expenditures that extends five years and beyond the capital budget to build-out. As the City's infrastructure conditions and needs change, capital programs and priorities must be adjusted. New construction may be required to accommodate increased demand or replace aging facilities, while existing infrastructure requires periodic rehabilitation, replacement, or other improvements to protect the City's investments. Striking a balance between the needs and interests of the community and the financial capacity of the City is a challenging task.

The CIP development process identifies the City's numerous needs, keeping in mind the limits of each funding source, progress on active CIP projects, and funding commitments made by prior CIPs. Capital projects affecting public health and safety, and/or legal mandates may receive the highest priority. Emphasis is also placed on capital projects maintaining service levels or preventing deterioration of facilities. Priorities are based on economic feasibility, community enhancement and need, infrastructure, safety, and anticipated development trends within the City.

- Essential (Start within 1 year)
- Necessary (Start within 1 to 3 years)
- Desirable (Start within 3 to 5 years)
- Deferrable (Start within 5 to 10 years)

The City funds the construction and maintenance of these facilities using a wide range of resources, including tax revenue, bond proceeds, special district financing, state and federal grants, and fees. The City continues to look for ways to maximize funding for CIP projects by leveraging its funding through federal, state and local grants, and reimbursements.

Capital improvement projects are in conformance with the City of Moreno Valley's General Plan. CIP projects also meet City Council goals by ensuring that needed public facilities, roadway improvements, and other infrastructure improvements are constructed and maintained, by promoting a sense of community pride, and by creating a positive environment for the development of Moreno Valley's future.

City Council

Dr. Yxstian A. Gutierrez, Mayor
 Victoria Baca, Mayor Pro Tem, District 1
 Vacant, Council Member, District 2
 David Marquez, Council Member, District 3
 Ulises Cabrera, Council Member, District 4

City Council Goals**Revenue Diversification and Preservation**

Develop a variety of City revenue sources and policies to create a stable revenue base and fiscal policies to support essential City services, regardless of economic climate.

Advocacy

Develop cooperative intergovernmental relationships and be a forceful advocate of City policies, objectives, and goals to appropriate external governments, agencies, and corporations.

Public Safety

Provide a safe and secure environment for people and property in the community, control the number and severity of fire and hazardous material incidents, and provide protection for citizens who live, work, and visit the City of Moreno Valley.

Community Image, Neighborhood Pride and Cleanliness

Promote a sense of community pride and foster an excellent image about our City by developing and executing programs which will result in quality development, enhanced neighborhood preservation efforts, including home rehabilitation and neighborhood restoration.

Public Facilities and Capital Projects

Ensure that needed public facilities, roadway improvements, and other infrastructure improvements are constructed and maintained.

Positive Environment

Create a positive environment for the development of Moreno Valley's future.

Capital Improvement Projects

Capital improvements are the construction, upgrading, or replacement of City infrastructure, such as streets, bridges, traffic signals, storm drain systems, drainage channels, parks, and public service facilities.

Infrastructure improvements are considered capital improvement projects when the expected life of the asset spans multiple years (in excess of two years) and expenditures are at least \$25,000. These significant non-routine capital expenditures are accounted for as capital projects within the CIP. Equipment, operating, and maintenance costs are identified for inclusion in future operating budgets.

In contrast, routine capital purchases of new vehicles, computer hardware, and other equipment are largely accounted for in special funds, such as the Maintenance & Operations Funds and Technology Services Funds. These assets are capitalized when the initial individual cost is \$5,000 or more, with an estimated useful life greater than two years.

The FYs 2021/22 & 2022/23 CIP required Council approval for the biannual expenditures to construct or implement the identified capital improvements.

Budget Process

The City of Moreno Valley operates on a fiscal year basis, beginning July 1 and ending June 30. The CIP budget is prepared by the Public Works Department / Capital Projects Division under the supervision of the City Manager. The proposed CIP budget is part of the citywide budget, which is transmitted to the City Council and the public for review, public input, deliberation and adoption prior to the beginning of each new budget cycle.

The budget process for the FYs 2021/22 & 2022/23 CIP began in December 2020, in coordination with the City's two-year budget cycle. The Capital Projects Division distributed the CIP budget calendar, instructions, and forms to the departments, outlining the goals and directives for development of the upcoming CIP budget.

City departments submitted proposals for projects within their designated range of responsibilities. Subsequently, projects for which funding have been identified are categorized and described in the CIP. The City Manager's Office and the Financial & Management Services Department reviewed the CIP to ensure the City's priorities are addressed and adequate funds are available to complete projects. The CIP was presented to Finance Subcommittee on April 27, 2021 and was recommended to move forward to Council. The CIP was also presented to the Planning Commission on May 13, 2021 and was found to be in conformance with the City's General Plan. After CIP adoption by the City Council, the individual implementation phases of each project, such as design, land acquisition, and award of construction contracts that exceed \$75,000 for Public Works projects and \$50,000 for non-Public Works projects, still require City Council approval. Amendments to the CIP also require City Council approval.

Although the CIP spans five years, funds for only the first two years are appropriated within the budget. In general, the CIP budget provides funding for infrastructure construction and

rehabilitation, while the operating budget and other special funds provide funding for routine infrastructure maintenance. All budget items are presented to the City Council for approval as part of the City's Budget for Fiscal Years 2021/22 & 2022/23.

The City places a high priority on infrastructure construction, rehabilitation, and maintenance efforts to ensure its streets, landscaping, and facilities are built, maintained, and rehabilitated according to best practices and promote environmental sustainability. Emphasizing rehabilitation and effective maintenance practices minimizes deterioration and costly remediation efforts, thereby extending the useful life of infrastructure improvements and providing long-term savings.

Budget Amendments

Supplemental appropriations requested during the fiscal year, when necessitating the use of reserves/fund balance, require approval by the City Council. Supplemental appropriations requested during the fiscal year with offsetting revenues and budget adjustments between funds and departments are approved by the City Council or City Manager throughout the fiscal year, in line with approved signature authorities.

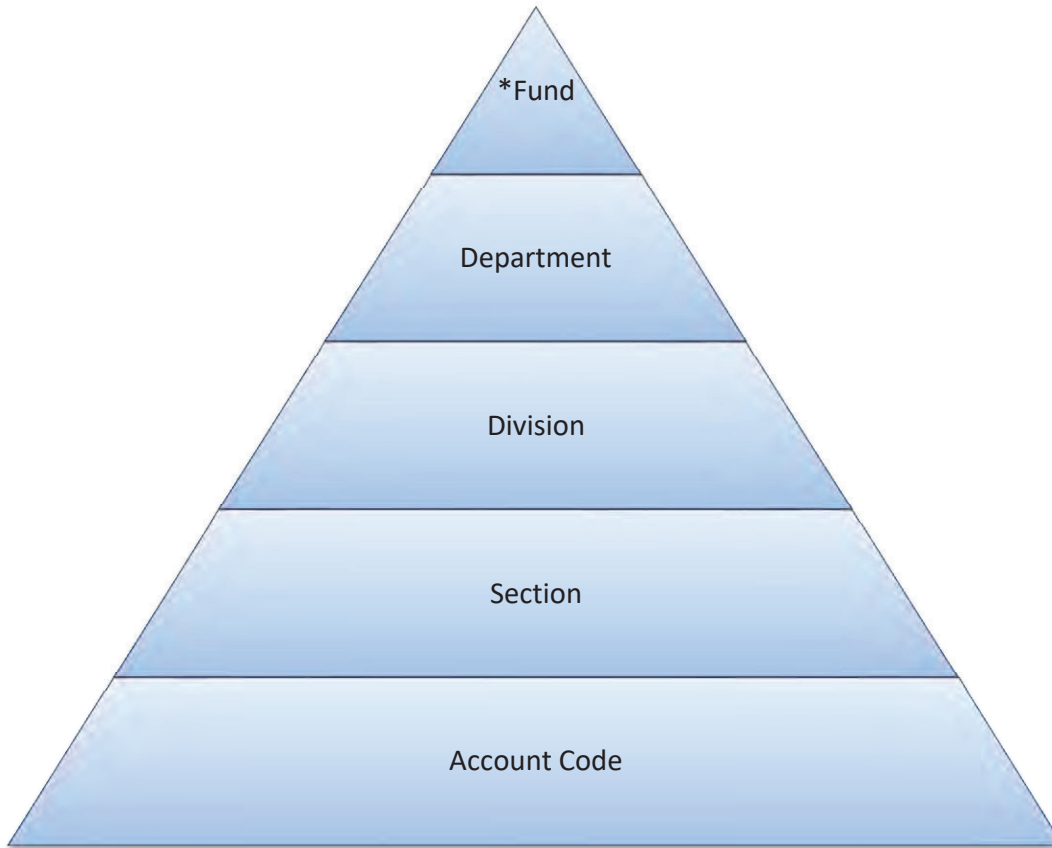
Basis of Accounting

Basis of accounting refers to the timing of revenue and expenditure recognition for budgeting and financial reporting. The City's financial statements and accounting records are maintained in accordance with the recommendations of the Governmental Accounting Standards Board (GASB). Government-wide financial statements are reported using the economic resources measurement focus and accrual basis of accounting, as are the proprietary fund and fiduciary fund financial statements. Revenues are recorded when earned and expenses are recorded when a liability is incurred, regardless of the timing of related cash flows. Property taxes are recognized as revenues in the year for which they levied. Grants and similar items are recognized as revenue as soon as all eligibility requirements imposed by the providers have been met. Budget development and budget adjustments utilize these same revenue and expenditure recognition timing policies and practices. As a general rule, the effect of inter-fund activity has been eliminated from the government-wide financial statements.

A carefully designed system of internal accounting controls is in operation at all times. These controls are designed to provide reasonable, but not absolute, assurances that safeguard assets against loss from unauthorized use or disposition and to ensure the reliability of financial records used in the preparation of financial statements. The concept of reasonable assurance recognizes the cost of a control should not exceed the benefit. The evaluation of costs and benefits likely to be derived require estimates and judgments by management. An independent, certified public accounting firm reviews the City's financial accounting processes, practices, and records annually.

Financial Structure

The following provides the City of Moreno Valley’s Financial Structure.



*City Council adopts the CIP Budget at the Fund level.

The City of Moreno Valley’s financial system is organized around a structure that is commonly found in most public agencies, as described below.

Fund: Each fund represents a self-balancing group of accounts and a balance sheet that allows for the proper segregation of the City’s financial resources.

For example, the General Fund accounting structure accumulates and tracks funds collected for the purpose of providing services that fulfill the general government role of the City. These services include essential public safety functions of Police, Fire, Community Development, Public Works and Animal Control, as well as the central administration functions of the City Council, City Manager’s Office, City Attorney’s office, City Clerk’s office, Human Resources Department, and portions of the Financial & Management Services Department.

Department: The functions carried out by the City are organized by Department. The leadership and staff assigned to each department are charged with carrying out these assigned functions.

The City's Departments/Offices are listed below:

- City Council's Office
- City Clerk's Office
- City Manager's Office
- City Attorney's Office
- Community Development Department
- Economic Development Department
- Financial & Management Services Department
- Fire Department
- Parks & Community Services Department
- Police Department
- Public Works Department

Division: In certain instances, functions carried out by a particular department are numerous and diverse. In these instances, leadership within a department is further organized by Divisions as reflected in the City's organization chart.

Section: The Section is used within the City's financial system to identify a division or program area within a department. A department can have one or more cost centers assigned to it in order to capture costs for each separate function.

Account Code: The basic unit of the City's financial system is the account code. Its purpose is to provide a means of separating each type of cost from another.

The City of Moreno Valley maintains this type of formal structure to maintain accountability over the assets and other financial resources for which it has control.

Project Accounting

Standard accounting processes are designed to monitor the financial progress of organizational elements over defined time periods. CIP project accounting differs in that it frequently crosses organizational boundaries, may last for a few days or weeks or continue for a number of years, during which time budgets may also be revised many times. A project also may be one of a number of projects that make up a larger overall project or program.

Project accounting is the practice of creating financial reports specifically designed to track the financial progress of projects. It is the process of identifying, measuring, recording, and communicating project cost data within the project time frame; not just the fiscal time frame. It also includes data that represents the cost of work to complete the project. Therefore, it is speculative in nature and estimated to a reasonable round number rather than being accurate to the nearest penny.

Project accounting is an essential service for supporting project cost management. It allows the organization to estimate, or budget, the total cost of the project and to track the costs as they occur. Both expenditures and revenues may be created and tracked for specific projects. Purchase orders, invoices, journals, receipts and payroll expenditures can be associated to a project at time of entry and will update the project financial data at the same time. Each project can be budgeted and reports and inquiries can be generated to quickly see the projects'

current status and past history. At the end of the project, the organization can evaluate the financial cost of the project to determine how well the project team stayed within budget and to identify any issues that caused the actual project costs to exceed the budget.

Project Validation Sets

The following information describes the design of the CIP Project Accounting numbering scheme and level structure.

A project category is assigned to all CIP projects. Project numbers correspond to the CIP category. Streets and Highways, the largest and most visible category, is the first category listed in the CIP. The CIP contains 10 categories. CIP project numbers are comprised of a numerical string. The first 3-digit sequence begins with the number 8.

- 801 - Streets and Highways
- 802 - Bridges
- 803 - Buildings
- 804 - Drainage
- 805 - Electric Utility
- 806 - Landscaping
- 807 - Parks
- 808 - Traffic Signals
- 809 - Underground Utilities
- 810 - Other

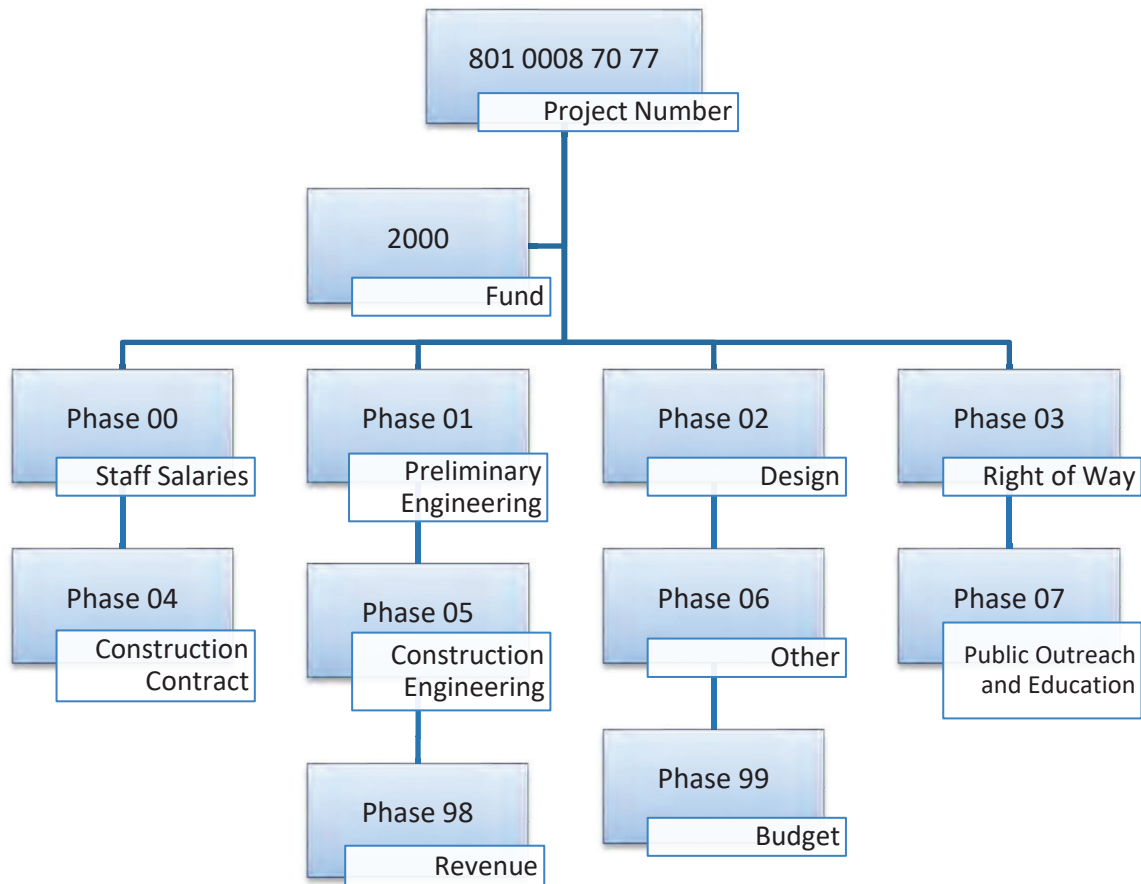
Project Accounting contains three levels for tracking purposes.

Level One is a 7 to 11 digit string comprised of the CIP category, a four-digit number specific to the project, the department number, and the division number. (Beginning in FY 2014/15, the department and division numbers were omitted for all new projects.)

Level Two is the four-digit fund number. This level allows for single or multiple funding sources for each project. Reports can be run by funding source across all projects or for specific projects.

Level Three is the two-digit phase number. The various phases correspond to the funding phases for state, federal, and local grant awards, allowing for ease in tracking grant expenditures for reimbursement purposes.

The following chart depicts the three levels used for project accounting. All levels roll up to Level One.



Project Number	Fund	Phase
801 0008 70 77	-2000	-04

- 801 Streets and Highways Category
- 0008 Project Specific Number (Annual ADA Compliant Access Upgrades)
- 70 Department (Public Works)
- 77 Division (Capital Projects)
- 2000 Funding Source (Gas Tax)
- 04 Construction Contract (Construction Prime Contractor)

Revenue Sources

Identifying funding is the greatest challenge involved in maintaining and enhancing capital needs. The FYs 2021/22 & 2022/23 CIP utilizes a variety of funding. These revenue sources are listed below.

Air Quality Management Incentives	\$ 40,000
Community Facility District Fees	\$202,000
Co-Opt Agreements – Riverside County Flood Control	\$ 1,800,000
Development Impact Fees	\$475,000
Equipment Replacement Reserve	\$ 1,000,000
Facilities Replacement Reserve	\$ 2,258,691
Highway Users Tax Account (HUTA) / Gas Tax	\$ 1,320,000
Measure A	\$ 280,000
Moreno Valley Utility – Lease Revenue Bonds / 2018 Streetlight Financing	\$ 6,790,436
Parkland Improvements Fees	\$ 2,125,000
Quimby In-Lieu Park Fees	\$ 605,000
Road Maintenance and Rehabilitation Account (RMRA) / SB1	\$ 7,200,000
Special Districts Landscape Zones/Medians / Districts Fees	\$ 2,900,000
Storm Water Management Fees	\$ 160,000
Traffic Mitigation Fees	\$ 100,000
Zone A Park Fees	\$ 533,719

City staff aggressively pursues funding alternatives for projects consistent with infrastructure needs as well as optimizing annual revenue received from local, state, and federal government agencies.

The City faces a number of challenges in funding for the repair and maintenance of approximately 510 centerline miles of streets and essential infrastructure. Community needs and desires intensify the demand for City amenities and with it overall construction costs. Although construction activity helps sustain the local economy, the resulting increase in construction costs requires diligent management in planning and delivering infrastructure improvements.

Another challenge Moreno Valley continues to tackle is offsetting the impact of new growth on the City's existing infrastructure. Population growth and private development increase the demand for street and traffic signal construction, new parks, expansion of public buildings, and new electric facilities to reliably serve existing and future customers. This progression results in three related capital issues:

- funding costly capital improvements that accommodate growth
- balancing growth related capital investments with state of good repair funding
- planning for increases to annual maintenance and operations costs associated with newly constructed infrastructure

Aligning the City's capital budget with community needs will continue to be a challenge. However, the City has taken steps to expand funding that demonstrates its commitment to maintaining and enhancing capital needs. Certain revenue sources are restricted to specific kinds of projects (circulation versus non-circulation), geographic areas, or construction types (new construction versus rehabilitation).

Estimated Maintenance Costs

Street Maintenance

- ❖ Street maintenance costs on average are approximately \$2.50/SF for grind and overlay and \$0.75/SF for slurry seal. Street maintenance costs over a 20-year period are estimated to average \$12,000 per 13-foot wide lane mile per year. Street maintenance funding will be part of the deferred maintenance for the whole network.
- ❖ The Pavement Management Program is estimated to cost between \$130,000 to \$150,000 every 3 years.
- ❖ The annual average cost associated with maintaining speed hump performance is \$500 per speed hump.
- ❖ Sidewalk maintenance costs over a 50-year period are estimated to average approximately \$5,400 per 6-foot wide sidewalk mile per year.
- ❖ Ramp maintenance costs over a 20-year period are estimated to average approximately \$750 per location per year.
- ❖ Trail maintenance costs average approximately \$4,000/acre per year. Actual maintenance costs may vary depending on the size and amenities of the site.

Bridge Maintenance

- ❖ Bridge improvement and routine maintenance costs are estimated to average \$1.20/SF per year. Bridge surface costs over a 20-year period are estimated to average \$12,000 per 13-foot wide lane mile per year.
- ❖ Ramp maintenance costs over a 20-year period are estimated to average approximately \$750 per location per year. Caltrans will fund maintenance of the ramps, freeway, and structures.

Building Maintenance

- ❖ Annual average building maintenance costs are estimated at approximately \$10.00/SF. Although actual maintenance costs may vary, estimated costs are based on an industry accepted standard maintenance cost.

Drainage Maintenance

- ❖ Annual average costs associated with each trash capture device is approximately \$400 (\$200/ twice a year).

- ❖ Annual average maintenance costs are estimated at approximately \$1,000 for detention basin maintenance, \$300 for catch basin filter insert maintenance, and \$3,000 bi-annually for storm water quality features.
- ❖ The Riverside County Flood Control and Water Conservation District will maintain pipes larger than 36" diameter. The City will maintain pipes 36" diameter or smaller. Annual average costs associated with storm drain maintenance are estimated at approximately \$121 per catch basin. This does not include actual catch basin and/or pipeline replacement, which typically have lifespans of 70 to 100 years. Although actual maintenance costs may vary, these estimated maintenance costs are based on historical maintenance costs for the City of Moreno Valley's storm drain infrastructure. Drainage maintenance funding will be part of the deferred maintenance for the whole network.

Electric Utility Maintenance

- ❖ Ongoing maintenance costs are built into Moreno Valley Utility's rate structure as part of the cost to serve.

Landscape Maintenance

- ❖ Maintenance costs are funded through the annual assessments levied on the property tax bills.

Park Maintenance

- ❖ Annual park maintenance costs average approximately \$12,000/acre. Actual maintenance costs may vary depending on the size and amenities of the site.
- ❖ Demonstration Garden maintenance costs average approximately \$14,000/acre per year.

Traffic Signal Maintenance

- ❖ Annual average costs associated with traffic signal maintenance are approximately \$3,500 per traffic signal.
- ❖ Maintenance cost of fiber optic communication media and equipment is expected to cost \$4,000 per mile per annum. The cost to maintain CCTV cameras is projected to be \$500 per camera per annum.

Underground Utility Maintenance

- ❖ Annual operating cost is zero. The underground facility provides monthly cost savings of \$1,700. Additionally, as fiber circuits are activated, cost savings increase annually.

Citywide Camera Surveillance System Maintenance

- ❖ A third party is contracted to provide maintenance to the camera system. The cost for the maintenance is approximately \$185,000 per year. Future expansion is expected to increase these costs by approximately \$25,000 per year.

Future Project Costs

The escalation in construction costs also has a significant impact on the City's CIP, creating major challenges in funding the capital budget. A major impetus of construction cost escalation is the improving bid environment arising from growing local construction demand. The bidding environment becomes increasingly favorable for contractors as the demand for private development and City infrastructure improvements intensifies.

Due to rising construction costs, it is necessary to periodically apply a global percentage increase to unfunded projects based on the Consumer Price Index (CPI), published by Bureau of Labor Statistics (BLS), for the Los Angeles, Riverside, and Orange County areas and the Construction Cost Index (CCI), published by Engineering News Record (ENR). The CPI measures changes in the price level of a fixed basket of consumer goods and services purchased by households. Similarly, the CCI measures changes in the price level of a fixed basket of labor and materials costs.

Staff closely monitors inflation indices and uses this information to determine expected capital cost escalation over the five-year CIP. A higher cost escalator will reduce the amount of work that can be done with planned revenues.

The current methodology requires that both the CPI and CCI must exceed 15% before the global percentage increase is applied to the unfunded projects. Between December 2018 and December 2020, the referenced CPI and CCI are hovering in the range of 3.9% to 7.7% increase over the cumulative two-year period. Accordingly, this year's unfunded projects do not reflect any global cost adjustment. When an unfunded project becomes partially or fully funded, a cost analysis will be done to reflect the most current cost.



PROJECT DETAILS BY CATEGORY

PROPOSED
CAPITAL IMPROVEMENT PLAN

fiscal years 2021/22 & 2022/23





STREETS & HIGHWAYS

PROPOSED
CAPITAL IMPROVEMENT PLAN

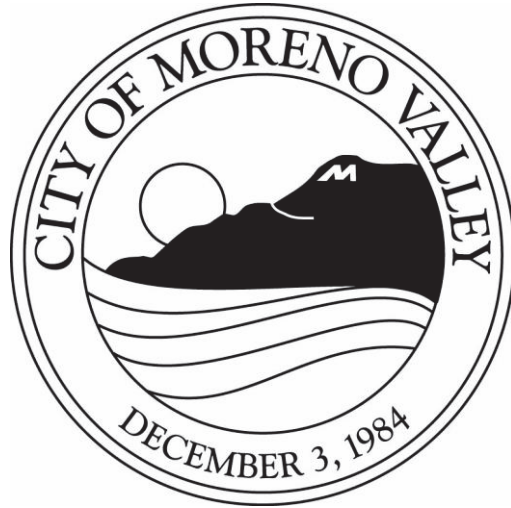
fiscal years 2021/22 & 2022/23



**CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond**

<u>Project Name</u>	<u>Page #</u>
<i>Streets and Highways</i>	
<i>Funded Projects</i>	
Citywide Pavement Rehabilitation Program FY 20/21	S-3
Citywide Pavement Rehabilitation Program FY 21/22	S-4
Citywide Pavement Rehabilitation Program FY 22/23	S-5
Heacock Street Pedestrian and Bicycle Enhancements / Gregory Lane to 680 Ft South	S-6
Juan Bautista de Anza Multi-Use Trail / El Potrero Park to Lake Perris State Park - ATP 3	S-7
Juan Bautista de Anza Multi-Use Trail / Iris Avenue to El Potrero Park - ATP 2	S-8
Juan Bautista de Anza Multi-Use Trail / Moreno Valley Mall to Iris Avenue - ATP 4	S-9
Pavement Rehabilitation for Various Streets (CDBG FY 20/21)	S-10
SR-60 / Moreno Beach Drive Interchange (Phase 2)	S-11
<i>Partially Funded Projects</i>	
Annual ADA Compliant Access Upgrades	S-13
Annual Pavement Maintenance - Crack Seal	S-14
Citywide Concrete Repair Program	S-15
Citywide Pavement Rehabilitation Program FY 23/24 and Beyond	S-16
Easement Acquisition for Street Purposes	S-17
Heacock Street South Extension	S-18
Pavement Management Program	S-19
Perris Boulevard / 330 Ft North of Bay Avenue to 660 Ft North of Bay Avenue	S-20
Residential Traffic Management Program (Speed Hump Program)	S-21
SR-60 / Redlands Boulevard Interchange	S-22
SR-60 / World Logistics Center Parkway Interchange	S-23

CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond



CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Citywide Pavement Rehabilitation Program FY 2021		Project Status: <input type="checkbox"/> New <input checked="" type="checkbox"/> In Progress <input type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold		Project Priority in CIP Category: <input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)			
Department / Division: Public Works Department / Capital Projects Division		Project Location Map:					
Project Description: This project is to provide pavement rehabilitation for a number of street segments citywide. The project is funded with Gas Tax Revenues (SB1). Design: July 2020 to March 2021 Advertise / Award: April 2021 to August 2021 Construction: September 2021 to February 2022 Justification or Significance of Improvement: The project utilizes different cost effective treatments available to rehabilitate the existing street pavement. The project helps to extend the service life of the roadway. Estimated Maintenance Costs: Street maintenance is typically funded by Gas Tax and Measure A funds, and costs on average are approximately \$2.50 / square foot for grind and overlay and \$0.75 / square foot for slurry seal. Street maintenance costs over a 20 year period are estimated to average almost \$12,000 per 13 foot wide lane mile per year. Street maintenance funding will be part of the deferred maintenance for the whole network.		CITYWIDE					
		Council District(s): <input checked="" type="checkbox"/> District 1 <input checked="" type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input checked="" type="checkbox"/> District 4					
Life-to-Date Expenditures Through FY 2019/2020: 0		FY 21/22 - FY 22/23 Budget					
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design	100,000						
Right of Way Construction	3,192,736						
Other							
PROJECT TOTAL	3,292,736	0	0	0	0	0	0
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Gas Tax (2000A)	3,292,736						
801 0087-2000A							
REVENUE TOTAL	3,292,736	0	0	0	0	0	0

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Citywide Pavement Rehabilitation Program FY 21/22		Project Status: <input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold		Project Priority in CIP Category: <input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)	
Department / Division: Public Works Department / Capital Projects Division		Project Location Map: CITYWIDE			
Project Description: This project is to provide pavement rehabilitation for a number of street segments citywide. The project is funded with Gas Tax Revenues (SB1). Design: July 2021 to March 2022 Advertise / Award: April 2022 to June 2022 Construction: July 2022 to February 2023 Justification or Significance of Improvement: The project utilizes different cost effective treatments available to rehabilitate the existing street pavement. The project helps to extend the service life of the roadway. Estimated Maintenance Costs: Street maintenance is typically funded by Gas Tax and Measure A funds, and costs on average are approximately \$2.50 / square foot for grind and overlay and \$0.75 / square foot for slurry seal. Street maintenance costs over a 20 year period are estimated to average almost \$12,000 per 13 foot wide lane mile per year. Street maintenance funding will be part of the deferred maintenance for the whole network.		Council District(s): <input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4			
Life-to-Date Expenditures Through FY 2019/2020: 0		FY 21/22 - FY 22/23 Budget			
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025
Prelim. Eng. / Environ. Design Right of Way Construction Other		100,000 3,500,000 3,600,000			
PROJECT TOTAL	0	3,600,000	0	0	3,600,000
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025
Gas Tax (2000A) 801 XXXX-2000A		3,600,000			
REVENUE TOTAL	0	3,600,000	0	0	3,600,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Citywide Pavement Rehabilitation Program FY 22/23		Project Status: <input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Deleted <input type="checkbox"/> Completed <input type="checkbox"/> On Hold		Project Priority in CIP Category: <input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)	
Department / Division: Public Works Department / Capital Projects Division		Project Location Map: CITYWIDE			
Project Description: This project is to provide pavement rehabilitation for a number of street segments citywide. The project is funded with Gas Tax Revenues (SB1). Design: July 2022 to March 2023 Advertise / Award: April 2023 to June 2023 Construction: July 2023 to February 2024 Justification or Significance of Improvement: The project utilizes different cost effective treatments available to rehabilitate the existing street pavement. The project helps to extend the service life of the roadway. Estimated Maintenance Costs: Street maintenance is typically funded by Gas Tax and Measure A funds, and costs on average are approximately \$2.50 / square foot for grind and overlay and \$0.75 / square foot for slurry seal. Street maintenance costs over a 20 year period are estimated to average almost \$12,000 per 13 foot wide lane mile per year. Street maintenance funding will be part of the deferred maintenance for the whole network.		Council District(s): <input checked="" type="checkbox"/> District 1 <input checked="" type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4			
Life-to-Date Expenditures Through FY 2019/2020: 0		FY 21/22 - FY 22/23 Budget			
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025
Prelim. Eng. / Environ. Design Right of Way Construction Other			100,000 3,500,000		
PROJECT TOTAL	0	0	3,600,000	0	0
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025
Gas Tax (2000A) 801 XXXX-2000A			3,600,000		
REVENUE TOTAL	0	0	3,600,000	0	0
				FY 2025/2026 and Beyond	Total
					100,000 3,500,000 3,600,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Heacock Street Pedestrian and Bicycle Enhancements / Gregory Lane to 680 Ft South</p> <p>Department / Division: Public Works Department / Capital Projects Division</p>	<p>Project Status:</p> <p><input type="checkbox"/> New <input type="checkbox"/> Deleted</p> <p><input checked="" type="checkbox"/> In Progress <input type="checkbox"/> On Hold</p> <p><input type="checkbox"/> Completed</p>	<p>Project Priority in CIP Category:</p> <p><input checked="" type="checkbox"/> Essential (Start within 1 yr)</p> <p><input type="checkbox"/> Necessary (Start within 1 to 3 yrs)</p> <p><input type="checkbox"/> Desirable (Start within 3 to 5 yrs)</p> <p><input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>					
<p>Project Location Map:</p>							
<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input checked="" type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>							
<p>Project Description:</p> <p>This project will provide missing street improvements including sidewalk, curb, gutter, asphalt concrete pavement, and striping along Heacock Street. Due to several requests from local residents, this project will improve the east side of Heacock Street from Gregory Lane to approximately 680 ft south of Gregory Lane. Right of way has been secured. The project received SB 821 grant funding for implementation.</p> <p>Design: May 2020 to June 2021 Advetise / Award: July 2021 to September 2021 Construction: October 2021 to June 2022</p> <p>Justification or Significance of Improvement:</p> <p>The purpose of this project is to improve segments of roadway where full-width street improvements do not currently exist.</p> <p>Estimated Maintenance Costs:</p> <p>Street maintenance is typically funded by Gas Tax and Measure A funds, and costs on average are approximately \$2.50 / square foot for grind and overlay and \$0.75 / square foot for slurry seal. Street maintenance costs over a 20 year period are estimated to average almost \$12,000 per 13 foot wide lane mile per year. Street maintenance funding will be part of the deferred maintenance for the whole network.</p>							
<p>Life-to-Date Expenditures Through FY 2019/2020: 10,468</p>							
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other	100,000 474,531						
PROJECT TOTAL	574,531	0	0	0	0	0	0
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
SCAG Article 3 (2800) 801 0076-2800 DIF Arterial Streets (2901) 801 0076-3301	520,000 54,531						
REVENUE TOTAL	574,531	0	0	0	0	0	0

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Juan Bautista de Anza Multi-Use Trail / El Potrero Park to Lake Perris State Park - ATP 3</p>		<p>Project Status:</p> <p><input type="checkbox"/> New <input type="checkbox"/> Deleted</p> <p><input checked="" type="checkbox"/> In Progress <input type="checkbox"/> On Hold</p> <p><input type="checkbox"/> Completed</p>		<p>Project Priority in CIP Category:</p> <p><input checked="" type="checkbox"/> Essential (Start within 1 yr)</p> <p><input type="checkbox"/> Necessary (Start within 1 to 3 yrs)</p> <p><input type="checkbox"/> Desirable (Start within 3 to 5 yrs)</p> <p><input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>	
<p>Department / Division: Public Works Department / Capital Projects Division</p>					
<p>Project Description:</p> <p>This project will construct a two mile long bicycle and pedestrian path segment of the Juan Bautista de Anza Multi-Use Trail that connects to an existing segment of the Juan Bautista de Anza Trail, Lake Perris State Park, Rancho Verde High School, and City of Perris' trail network. The project is funded by the state's Active Transportation Program (ATP) Fund, Cycle 3.</p> <p>Preliminary Engineering / Environmental: Completed in November 2018 Design and Right of Way: Completed in August 2020 Construction: January 2021 to September 2021</p> <p>Justification of Significance of Improvement: The project will expand recreational opportunities for Moreno Valley's residents.</p> <p>Estimated Maintenance Costs: Trail maintenance costs average approximately \$4,000 per acre per year based on budget information provided by the Parks Maintenance Division. Actual maintenance costs may vary depending on the size and amenities of the site.</p>					
<p>Life-to-Date Expenditures Through FY 2019/2020: 277,742</p>		<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input checked="" type="checkbox"/> District 4</p>			
<p>PROJECT PHASE</p> <p>Prelim. Eng. / Environ. Design Right of Way Construction Other</p>		<p>Budget FY 2020/2021</p> <p>2,921,257</p>		<p>FY 21/22 - FY 22/23 Budget</p> <p>New Request FY 2021/2022 0 New Request FY 2022/2023 0 Total 0</p>	
<p>FUNDING SOURCE</p> <p>Cap Proj Grants (2301) 801 0077-2301 PCS Cap Proj (2905) 801 0077-3015</p>		<p>Budget FY 2020/2021</p> <p>2,571,257 350,000</p>		<p>FY 2023/2024 0 FY 2024/2025 0 FY 2025/2026 and Beyond 0 Total 0</p>	
<p>REVENUE TOTAL</p>		<p>2,921,257</p>		<p>0</p>	

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Juan Bautista de Anza Multi-Use Trail / Iris Avenue to El Potrero Park - ATP 2</p>		<p>Project Status:</p> <p><input type="checkbox"/> New <input type="checkbox"/> Deleted</p> <p><input checked="" type="checkbox"/> In Progress <input type="checkbox"/> On Hold</p> <p><input type="checkbox"/> Completed</p>		<p>Project Priority in CIP Category:</p> <p><input checked="" type="checkbox"/> Essential (Start within 1 yr)</p> <p><input type="checkbox"/> Necessary (Start within 1 to 3 yrs)</p> <p><input type="checkbox"/> Desirable (Start within 3 to 5 yrs)</p> <p><input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>			
<p>Department / Division: Public Works Department / Capital Projects Division</p>							
<p>Project Description:</p> <p>This project will construct a portion of the Juan Bautista de Anza Multi-Use Trail between Iris Avenue and El Potrero Park, a length of 1.4 miles. The project is fully funded in the amount of \$1,431,000 by federal funds under the Active Transportation Program (ATP) Cycle 2.</p> <p>Final Design and Right of Way: Completed Authorization / Advise / Bid / Award: December 2020 to May 2021 Construction: June 2021 to December 2021</p> <p>Justification or Significance of Improvement: The project will expand recreational opportunities for Moreno Valley's residents.</p> <p>Estimated Maintenance Costs: Trail maintenance costs average approximately \$4,000 per acre per year based on budget information provided by the Parks Maintenance Division. Actual maintenance costs may vary depending on the size and amenities of the site.</p>							
<p>Life-to-Date Expenditures Through FY 2019/2020: 343,946</p>							
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other	1,137,051	100,000					100,000
PROJECT TOTAL	1,137,051	100,000	0	0	0	0	100,000
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Cap Proj Grants (2301) 801 0073-2301 Traffic Sig Mit (3004) 801 0073-3004 PCS Cap Proj (2906) 801 0073-3016	1,126,625 4,873 5,553	100,000					100,000
REVENUE TOTAL	1,137,051	100,000	0	0	0	0	100,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Juan Bautista de Anza Multi-Use Trail / Moreno Valley Mall to Iris Avenue - ATP 4</p> <p>Department / Division: Public Works Department / Capital Projects Division</p> <p>MOMENTUM MOVel</p>	<p>Project Status:</p> <p><input type="checkbox"/> New <input checked="" type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>					
<p>Project Location Map:</p>							
<p>Project Description:</p> <p>This project will design and construct more than four mile long bicycle and pedestrian path segments of the Juan Bautista de Anza Multi-Use Trail from Moreno Valley Mall to Iris Avenue. The project is funded by the state's Active Transportation Program (ATP) Fund, Cycle 4.</p> <p>Preliminary Engineering / Environmental: Completed in November 2018 Design and Right of Way: September 2019 to November 2021 Construction: December 2021 to June 2023 (includes bidding and Caltrans approval)</p> <p>Justification or Significance of Improvement:</p> <p>The project will expand recreational opportunities for Moreno Valley's residents.</p> <p>Estimated Maintenance Costs:</p> <p>Trail maintenance costs average approximately \$4,000 per acre per year based on budget information provided by the Parks Maintenance Division. Actual maintenance costs may vary depending on the size and amenities of the site.</p>							
<p>Council District(s):</p> <p><input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>							
<p>Life-to-Date Expenditures Through FY 2019/2020: 27,580</p>							
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other	322,419 660,000 7,393,000						
PROJECT TOTAL	8,375,419	0	0	0	0	0	0
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Cap Proj Grants (2301) 801 0086-2301	8,375,419						
REVENUE TOTAL	8,375,419	0	0	0	0	0	0

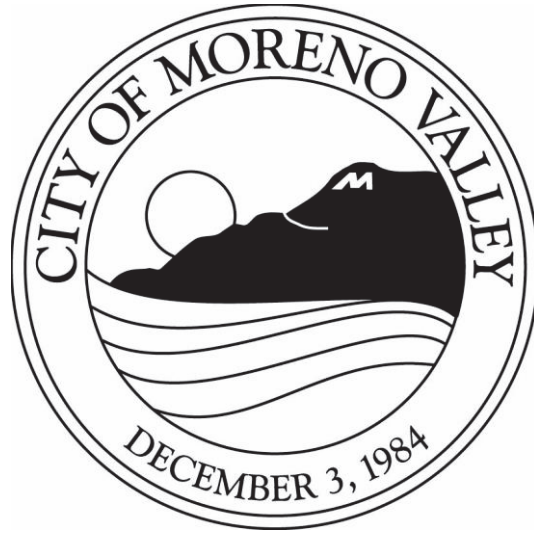
CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Pavement Rehabilitation for Various Streets (CDBG FY 20/21)</p> <p>Department / Division: Public Works Department / Capital Projects Division</p>		<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input checked="" type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>		<p>Project Priority in CIP Category:</p> <p><input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>			
<p>Project Description:</p> <p>This project is to provide pavement rehabilitation for various streets in the Community Development Block Grant (CDBG) target areas. Rehabilitation includes the removal and replacement of pavement surface as well as crack sealing and applications of slurry seal to extend the service life of the street pavement.</p> <p>Design: July 2020 to February 2021 Advertise / Award: March 2021 to May 2021 Construction: June 2021 to December 2021</p> <p>Justification or Significance of Improvement:</p> <p>This project is within CDBG target areas and eligible to receive CDBG funding. Streets are prioritized and selected for rehabilitation based on their pavement conditions.</p> <p>Estimated Maintenance Costs:</p> <p>Street maintenance is typically funded by Gas Tax and Measure A funds, and costs on average are approximately \$2.50 / square foot for grind and overlay and \$0.75 / square foot for slurry seal. Street maintenance costs over a 20 year period are estimated to average almost \$12,000 per 13 foot wide lane mile per year. Street maintenance funding will be part of the deferred maintenance for the whole network.</p>		<p>Project Location Map:</p>		<p>Council District(s):</p> <p><input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>			
<p>Life-to-Date Expenditures Through FY 2019/2020: 0</p>		<p>FY 21/22 - FY 22/23 Budget</p>		<p>FY 2025/2026 and Beyond</p>			
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other	30,000 1,542,658						
PROJECT TOTAL	1,572,658	0	0	0	0	0	0
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
CDBG (2512) 801 0088-2512 Cap Proj Reim (3008) 801 0088-3008	1,453,156 119,502						
REVENUE TOTAL	1,572,658	0	0	0	0	0	0

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: SR-60 / Moreno Beach Drive Interchange (Phase 2)</p> <p>Department / Division: Public Works Department / Capital Projects Division</p> <p>Project Status: <input type="checkbox"/> New <input checked="" type="checkbox"/> In Progress <input type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p> <p>Project Priority in CIP Category: <input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>		<p>Project Location Map:</p> <p>Council District(s): <input type="checkbox"/> District 1 <input checked="" type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>						
<p>Project Description: This project replaces the SR-60 / Moreno Beach two-lane bridge with a seven lane bridge, reconfigures the north side of the interchange, and adds a west bound auxiliary lane. This project will also complete a portion of Storm Drain Line K-1 upstream in Ironwood Avenue. The City received an SB1 Trade Corridor Enhancement Program (TCEP) grant for interchange construction.</p> <p>Construction: June 2021 to December 2022 Plant Establishment: January 2023 to January 2025</p> <p>Justification or Significance of Improvement: Expansion of the current facilities will be needed due to the traffic demand resulting from development in the area. Moreno Beach Drive is on the TUMF network.</p> <p>Estimated Maintenance Costs: Street and bridge surface maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Caltrans will fund maintenance of the ramps, freeway, and structures.</p>		<p>Life-to-Date Expenditures Through FY 2019/2020: 1,922,122.00</p>						
PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget Request	FY 2021/2022	FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ.								0
Design	951,724							0
Right of Way								0
Construction	28,435,110							0
Other								0
PROJECT TOTAL	29,386,834		0	0	0	0	0	0
FUNDING SOURCE								
FEMA (2300)								
801 0021 70 77-2300	1,875,000							
TCEP (2301)								
801 0021 70 77-2301	16,800,000							
PW Gen Cap Proj (RCFC)								
801 0021 70 77-3002	2,500,000							
PW Gen Cap Proj (EMWD)								
801 0021 70 77-3002	60,110							
TUMF (3003)								
801 0021 70 77-3003	7,226,634							
DIF Interchange (2911)								
801 0021 70 77-3311	925,090							
REVENUE TOTAL	29,386,834		0	0	0	0	0	0

CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond



Attachment: Exhibit A - Proposed CIP FYs 2021/22 - 2022/23 (4417 : Capital Improvement Plan Fiscal Years 2021/22 - 2022/23)

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Annual ADA Compliant Access Upgrades		Project Status: <input type="checkbox"/> New <input checked="" type="checkbox"/> In Progress <input type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold		Project Priority in CIP Category: <input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)			
Department / Division: Public Works Department / Capital Projects Division		Project Location Map: CITYWIDE					
Project Description: The City's Americans with Disabilities Act (ADA) Transition Plan includes evaluating and upgrading non-compliant curb ramps and sidewalks, missing curb ramps and sidewalks, and other non-compliant issues within the public right of way (PROW) throughout the City. The ADA Administrator provides annual recommendations for curb ramp and sidewalk improvements including an ADA Transition Plan inspection. Project Schedule: Ongoing							
Justification or Significance of Improvement: The City's ADA Transition Plan identifies construction of non-compliant ramps and sidewalks to ADA specifications, based on the City's tier priorities and ADA Coordinator's directions for compliance.							
Estimated Maintenance Costs: Ramp maintenance costs over a 20 year period is estimated to average approximately \$750 per location per year.							
Life-to-Date Expenditures Through FY 2019/2020: 1,057,938							
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design			25,000	25,000	25,000	25,000	100,000
Right of Way Construction	764,600		150,000	150,000	150,000	150,000	600,000
Other			25,000	25,000	25,000	25,000	100,000
PROJECT TOTAL	764,600	0	200,000	200,000	200,000	200,000	800,000
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Gas Tax (2000)	764,600		200,000	200,000	200,000	200,000	800,000
801 0008 70 77-2000							
REVENUE TOTAL	764,600	0	200,000	200,000	200,000	200,000	800,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Annual Pavement Maintenance - Crack Seal		Project Status: <input type="checkbox"/> New <input checked="" type="checkbox"/> In Progress <input type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold		Project Priority in CIP Category: <input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)			
Department / Division: Public Works Department / Maintenance & Operations Division		Project Location Map: CITYWIDE					
Project Description: The Annual Pavement Maintenance - Crack Seal facilitates minor pavement rehabilitation work and crack sealing, as needed. Crack sealing and isolated removal and reconstruction of distressed pavement areas is performed, as needed, in order to maintain the existing pavement condition and prevent deterioration. Project Schedule: Ongoing							
Justification or Significance of Improvement: The purpose of pavement rehabilitation is to delay pavement surface deterioration while protecting the structural integrity utilizing of cracking sealing treatments as well as the removal and reconstruction of isolated distressed pavement areas.							
Estimated Maintenance Costs: Street maintenance is typically funded by Gas Tax and Measure A funds, and costs on average are approximately \$2.50 / square foot for grind and overlay and \$0.75 / square foot for slurry seal. Street maintenance costs over a 20 year period are estimated to average almost \$12,000 per 13 foot wide lane mile per year. Street maintenance funding will be part of the deferred maintenance for the whole network.							
Life-to-Date Expenditures Through FY 2019/2020: 47,888							
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other	54,528	60,000	60,000	60,000	60,000	60,000	300,000
PROJECT TOTAL	54,528	60,000	60,000	60,000	60,000	60,000	300,000
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Measure A (2001) 801 0017 70 78-2001	54,528	60,000	60,000	60,000	60,000	60,000	300,000
REVENUE TOTAL	54,528	60,000	60,000	60,000	60,000	60,000	300,000

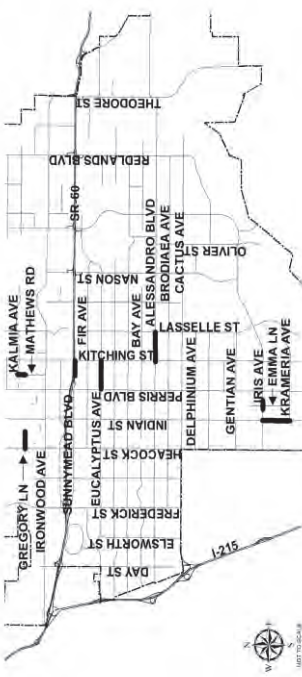
CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Citywide Concrete Repair Program		Project Status: <input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold		Project Priority in CIP Category: <input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)			
Department / Division: Public Works Department / Maintenance & Operations Division		Project Location Map:					
Project Description: The Citywide Concrete Repair Program consists of the removal and replacement of concrete such as sidewalk, drive approaches, and ADA ramps at various locations throughout the City. Anticipated Start Date: Fall 2021 Completion Date: Ongoing		CITYWIDE					
Justification or Significance of Improvement: The purpose of the Citywide Concrete Repair Program is to repair and replace concrete citywide which will improve pedestrian travel within the community.		Council District(s): <input checked="" type="checkbox"/> District 1 <input checked="" type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input checked="" type="checkbox"/> District 4					
Estimated Maintenance Costs: Annual average sidewalk maintenance costs are estimated at approximately \$0.25 / linear foot. Although actual maintenance costs may vary per location depending on the width of the sidewalk and surrounding landscaping and trees.							
Life-to-Date Expenditures Through FY 2019/2020: 0		FY 21/22 - FY 22/23 Budget					
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other		100,000	100,000			200,000	400,000
PROJECT TOTAL	0	100,000	100,000	0	0	200,000	400,000
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Gas Tax (2000) 801 XXXX-2000		100,000	100,000			200,000	400,000
REVENUE TOTAL	0	100,000	100,000	0	0	200,000	400,000

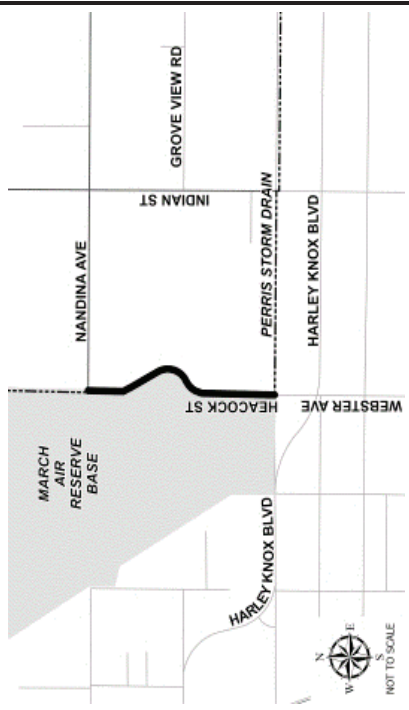
CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Citywide Pavement Rehabilitation Program FY 23/24 and Beyond</p> <p>Department / Division: Public Works Department / Capital Projects Division</p> <p>Project Description: This project is to provide pavement rehabilitation for a number of street segments citywide. The project is funded with Gas Tax Revenues (SB1). Design: TBD Advertise / Award: TBD Construction: TBD</p> <p>Justification or Significance of Improvement: The project utilizes different cost effective treatments available to rehab the existing street pavement. The project helps to extend the services life of the roadway.</p> <p>Estimated Maintenance Costs: Street maintenance is typically funded by Gas Tax and Measure A funds, and costs on average are approximately \$2.50 / square foot for grind and overlay and \$0.75 / square foot for slurry seal. Street maintenance costs over a 20 year period are estimated to average almost \$12,000 per 13 foot wide lane mile per year. Street maintenance funding will be part of the deferred maintenance for the whole network.</p>		<p>Project Status: <input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p> <p>Project Location Map:</p> <p align="center">CITYWIDE</p> <p>Project Priority in CIP Category: <input type="checkbox"/> Essential (Start within 1 yr) <input checked="" type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>					
		<p>Council District(s): <input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>					
		<p>Life-to-Date Expenditures Through FY 2019/2020: 0</p>					
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other				100,000 3,500,000	100,000 3,500,000	100,000 3,500,000	300,000 10,500,000
PROJECT TOTAL	0	0	0	3,600,000	3,600,000	3,600,000	10,800,000
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Gas Tax (2000A) 2000A				3,600,000	3,600,000	3,600,000	10,800,000
REVENUE TOTAL	0	0	0	3,600,000	3,600,000	3,600,000	10,800,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Easement Acquisition for Street Purposes		Project Status: <input type="checkbox"/> New <input checked="" type="checkbox"/> In Progress <input type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold		Project Priority in CIP Category: <input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)	
Department / Division: Public Works Department / Capital Projects Division		Project Location Map: 			
Project Description: This project establishes budget to process citywide Right of Way easement dedications in advance of need. The budget is used for staff and consultant time to solicit voluntary Right of Way from property owners, and for professional survey services to prepare the dedication documents. Some of the current priority locations include: <ul style="list-style-type: none">• Alessandro Boulevard, Kitching Street to Lasselle Street• Eucalyptus Avenue, Perris Boulevard to Kitching Street• Gregory Lane East of Heacock Street• Indian Street, Krameria Avenue to Iris Avenue• Iris Avenue at Emma Lane• Mathews Road, South of Kalmia Avenue• Sunnymead Boulevard West of Kitching Street Schedule: Ongoing		Justification or Significance of Improvement: Projects which have already secured Right of Way are more competitive to receive grant funding for future roadway improvement projects.			
Estimated Maintenance Costs: This project is not expected to increase maintenance cost.		Life-to-Date Expenditures Through FY 2019/2020: 39,000			
PROJECT PHASE		Life-to-Date Budget		Life-to-Date New Request	
Prelim. Eng. / Environ. Design	Budget FY 2020/2021	FY 2021/2022	FY 2022/2023	FY 2023/2024	FY 2024/2025
Right of Way Construction		25,000	25,000	25,000	25,000
Other					
PROJECT TOTAL	0	25,000	25,000	25,000	25,000
FUNDING SOURCE	Budget FY 2020/2021	FY 2021/2022	FY 2022/2023	FY 2023/2024	FY 2024/2025
Gas Tax (2000)		25,000	25,000	25,000	25,000
801 0065-2000					
REVENUE TOTAL	0	25,000	25,000	25,000	25,000
		FY 2025/2026 and Beyond		Total	
				125,000	

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Heacock Street South Extension		Project Status: <input type="checkbox"/> New <input checked="" type="checkbox"/> In Progress <input type="checkbox"/> Completed		Project Priority in CIP Category: <input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)	
Department / Division: Public Works Department / Capital Projects Division		MOMENTUM <i>MOVING</i>		Project Location Map: 	
Project Description: This project provides street widening for Heacock Street to full street width per City standards for arterial street from Nandina Avenue to south City limits. The project is currently under planning which includes preliminary engineering, conceptual design, alignment analysis, and coordination with other agencies. The completion of the final design, right of way, and construction phases are subject to City Council direction and approval. Planning: July 2021 to June 2022 Design: TBD Environmental / Right of Way: TBD Construction: TBD		Justification of Significance of Improvement: Extension of Heacock Street to Harley Knox Boulevard would reduce traffic on Indian Street and Perris Boulevard, both of which are projected to carry large traffic volumes in the City's Circulation Element. It is also favored by MARB emergency services staff, which desires the connection to aid in responding to airfield-related incidents. The extension would also facilitate development of the adjacent industrial area.		Estimated Maintenance Costs: Street maintenance is typically funded by Gas Tax and Measure A funds, and costs on average are approximately \$2.50 / square foot for grind and overlay and \$0.75 / square foot for slurry seal. Street maintenance costs over a 20 year period are estimated to average almost \$12,000 per 13 foot wide lane mile per year. Street maintenance funding will be part of the deferred maintenance for the whole network.	
Life-to-Date Expenditures Through FY 2019/2020: 391,495		FY 21/22 - FY 22/23 Budget			
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025
Prelim. Eng. / Environ.	121,905	50,000			
Design	461,000				
Right of Way	311,000				
Construction					
Other					
PROJECT TOTAL	893,905	50,000	0	0	0
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025
TUMF (3003)					
801 0010 70 77-3003	893,905				
Gas Tax (2000)					
801 0010 70 77-2000		50,000			
REVENUE TOTAL	893,905	50,000	0	0	0
				FY 2025/2026 and Beyond	FY 2025/2026 and Beyond
					Total
					250,000
					400,000
					350,000
					7,500,000
					8,500,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Pavement Management Program (PMP)		Project Status: <input type="checkbox"/> New <input checked="" type="checkbox"/> In Progress <input type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold		Project Priority in CIP Category: <input type="checkbox"/> Essential (Start within 1 yr) <input checked="" type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)			
Department / Division: Public Works Department / Capital Projects Division		Project Location Map: CITYWIDE					
Project Description: This project is to perform field visual inspection of all City-owned streets in the network to obtain their current conditions and determine their Pavement Conditions Index (PCI). The project also provides updates to network inventory with new streets and PCI values. The PMP is crucial in decision making and selection of streets for pavement rehabilitation and preservation. Street Inventory / Database Updates: July 2022 to November 2022 Field Inspection of Streets: September 2022 to March 2023 Data Entry and Analysis: November 2022 to April 2023 Final Report Preparation: May 2023 to July 2023							
Justification or Significance of Improvement: The City is required to inspect its streets every 3 years for arterial/collectors and 5 years for local streets and update its Pavement Management Program in order to be eligible to receive Federal and State SB1 funding for pavement rehabilitation and preservation.							
Estimated Maintenance Costs: It is estimated that it may cost between \$130,000 to \$150,000 to maintain the Pavement Management Program every 3 years.							
Life-to-Date Expenditures Through FY 2019/2020: 2,131							
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other			150,000			150,000	300,000
PROJECT TOTAL	0	0	150,000	0	0	150,000	300,000
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Gas Tax (2000) 801 0083-2000			150,000			150,000	300,000
REVENUE TOTAL	0	0	150,000	0	0	150,000	300,000

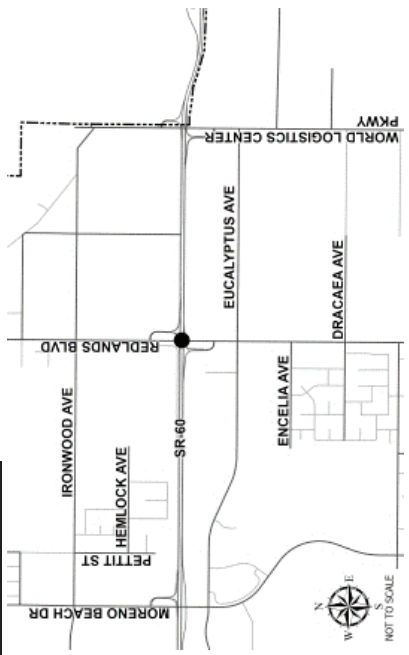
CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Perris Boulevard / 330 Ft North of Bay Avenue to 660 Ft North of Bay Avenue</p> <p>Department / Division: Public Works Department / Capital Projects Division</p> <p>Project Description: This project is to widen the east side of Perris Boulevard, north of Bay Avenue to include curb, gutter, sidewalk, and pavement extension. The design of the project is to be provided by the Developer.</p> <p>Design: July 2021 to June 2022 Advertise / Award: July 2022 to September 2022 Construction: October 2022 to June 2023</p> <p>Justification or Significance of Improvement: This project will provide the ultimate improvements for Perris Boulevard to enhance connecting and safety for drivers and pedestrians.</p> <p>Estimated Maintenance Costs: Street maintenance is typically funded by Gas Tax and Measure A funds, and costs on average are approximately \$2.50 / square foot for grind and overlay and \$0.75 / square foot for slurry seal. Street maintenance costs over a 20 year period are estimated to average almost \$12,000 per 13 foot wide lane mile per year. Street maintenance funding will be part of the deferred maintenance for the whole network.</p>	<p>Project Status: <input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p> <p>Project Location Map:</p>	<p>Project Priority in CIP Category: <input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>
<p>Council District(s): <input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>		
<p>Life-to-Date Expenditures Through FY 2019/2020: 0</p>		
	<p>FY 21/22 - FY 22/23 Budget</p>	
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022
Prelim. Eng. / Environ. Design Right of Way Construction Other		250,000
PROJECT TOTAL	0	250,000
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022
Gas Tax (2000) 801 XXXX-2000		250,000
REVENUE TOTAL	0	250,000
	FY 2023/2024	FY 2024/2025
	0	0
	FY 2025/2026 and Beyond	FY 2025/2026 and Beyond
	0	0
	Total	250,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Residential Traffic Management Program		Project Status: <input type="checkbox"/> New <input checked="" type="checkbox"/> In Progress <input type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold		Project Priority in CIP Category: <input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)			
Department / Division: Public Works Department / Transportation Engineering Division		CITYWIDE					
Project Description: Citywide traffic management strategies, including but not limited to signing, striping, radar speed feedback signs, installation of speed humps/tables, and roundabouts to be implemented based on vehicular speeds and traffic volumes to supplement existing public education and enforcement efforts to reduce vehicle speeds within residential neighborhoods. Project Schedule: Ongoing		Project Location Map:					
Justification or Significance of Improvement: The Transportation Engineering Division has established the Residential Traffic Management Program under City Council's direction to address residential speeding issues.		Council District(s): <input checked="" type="checkbox"/> District 1 <input checked="" type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input checked="" type="checkbox"/> District 4					
Estimated Maintenance Costs: Annual average cost associated with maintaining speed hump performance is \$500 per hump.							
Life-to-Date Expenditures Through FY 2019/2020: 230,768							
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other	200,000	50,000	50,000	50,000	50,000	50,000	250,000
PROJECT TOTAL	200,000	50,000	50,000	50,000	50,000	50,000	250,000
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Gas Tax (2000) 801 0015 70 76-2000 General Fund (1010) 801 0015 70 76-1010	200,000	50,000	50,000	50,000	50,000	50,000	200,000 50,000
REVENUE TOTAL	200,000	50,000	50,000	50,000	50,000	50,000	250,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: SR-60 / Redlands Boulevard Interchange	Department / Division: Public Works Department / Capital Projects Division	Project Status: <input checked="" type="checkbox"/> New <input checked="" type="checkbox"/> In Progress <input type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold	Project Priority in CIP Category: <input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input checked="" type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)	Project Location Map: 
<p>Project Description: This project will reconfigure the on- and off-ramps, replace the bridge, and alter Spruce Street on the north side of SR-60. A Project Study Report - Project Delivery Support (PSR - PDS) has been adopted by City Council. Highland Fairview (HLFV) has provided a funding deposit for City staff to review and/or process any interchange studies, as needed.</p> <p>PSR - PPS: Completed PA/ED: February 2021 to February 2024 Design: TBD Construction: TBD</p> <p>Justification or Significance of Improvement: The existing interchange requires modification to meet future traffic demand.</p> <p>Estimated Maintenance Costs: Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Caltrans will fund maintenance of the freeway, ramps, and structure.</p>		<p>Council District(s): <input type="checkbox"/> District 1 <input checked="" type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>		
Life-to-Date Expenditures Through FY 2019/2020: 211,061				
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other	3,505,187			3,790,000 13,365,000 41,310,000 58,465,000
PROJECT TOTAL	3,505,187	0	0	58,465,000
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	Total
TUMF (3003) 801 0064-3003 General Fund (1010) 801 0064-1010	3,500,000 5,187			58,465,000 58,465,000 58,465,000
REVENUE TOTAL	3,505,187	0	0	58,465,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

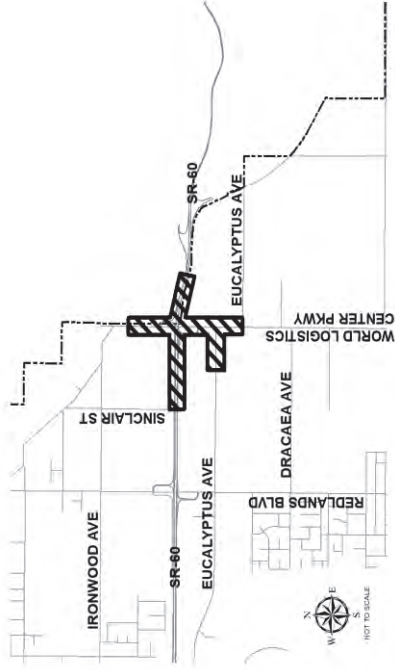
Project Title: SR-60 / World Logistics Center Parkway Interchange

Department / Division: Public Works Department / Capital Projects Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:



Council District(s):

District 1 District 2 District 3 District 4

Project Description:
 This project consists of replacement of the interchange, including bridge and ramp replacement to improve traffic operations, bring vertical clearance over the freeway to correct standards, and support forecast travel demands. The project includes improvements generally from Eucalyptus Avenue to Ironwood Avenue, including eastbound and westbound ramps to and from SR-60, and auxiliary lanes on SR-60. An Environmental Impact Report / Environmental Assessment was signed in December 2020 to obtain CEQA and NEPA clearance.

Preliminary Engineering / Environmental: Completed January 2021
 Design: Subject to available funding

Justification or Significance of Improvement:

The existing interchange requires modification to meet future traffic demands and update geometric deficiencies.

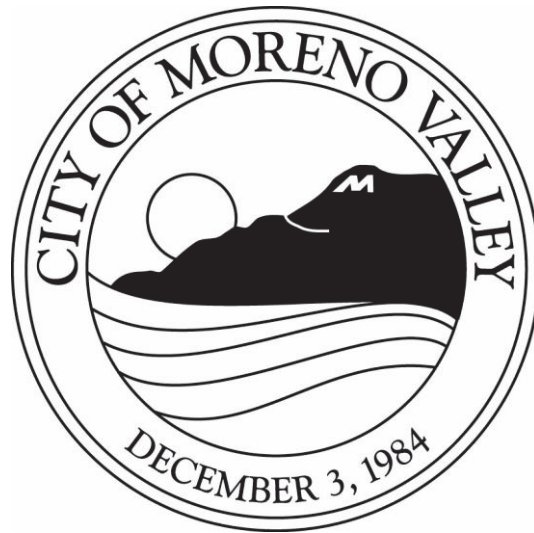
Estimated Maintenance Costs:

Street and bridge surface maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Caltrans will fund maintenance of the ramps, freeway, and structures.

Life-to-Date Expenditures Through FY 2019/2020: 3,396,497

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget		FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
		New Request FY 2021/2022	New Request FY 2022/2023				
Prelim. Eng. / Environ. Design	503,300			5,000,000			5,000,000
Right of Way Construction				18,000,000			18,000,000
Other						76,000,000	76,000,000
PROJECT TOTAL	503,300	0	0	23,000,000	0	76,000,000	99,000,000
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022		FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
DIF Interchange (2911)							
801 0052 70 77-3311 Unfunded (UNF) UNF	503,300			23,000,000		76,000,000	99,000,000
REVENUE TOTAL	503,300	0	0	23,000,000	0	76,000,000	99,000,000

CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond



Attachment: Exhibit A - Proposed CIP FYs 2021/22 - 2022/23 (4417 : Capital Improvement Plan Fiscal Years 2021/22 - 2022/23)



BRIDGES

PROPOSED
CAPITAL IMPROVEMENT PLAN

fiscal years 2021/22 & 2022/23

Attachment: Exhibit A - Proposed CIP FYs 2021/22 - 2022/23 (4417 : Capital Improvement Plan Fiscal Years 2021/22 - 2022/23)

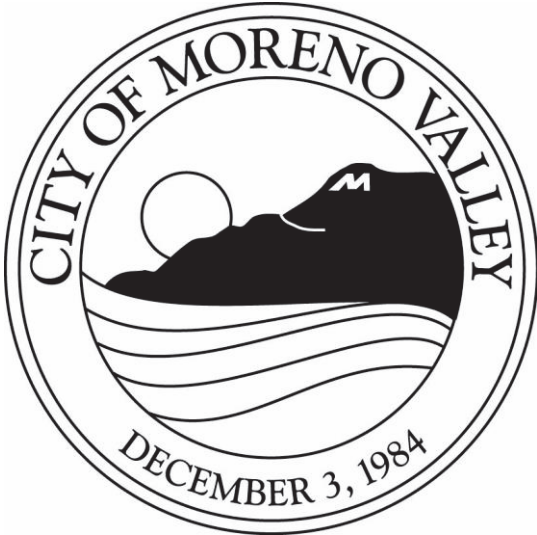


CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond

<u>Project Name</u>	<u>Page #</u>
<i>Bridges</i>	
<i>Funded Projects</i>	
SR-60 / Nason Overcrossing Bridge	BR-3
<i>Partially Funded Projects</i>	
Bridge Annual Inspection Program	BR-5
Bridge Preventative Maintenance Program - Implementation Phase	BR-6
Indian Street / Cardinal Avenue Bridge (Over Lateral A)	BR-7

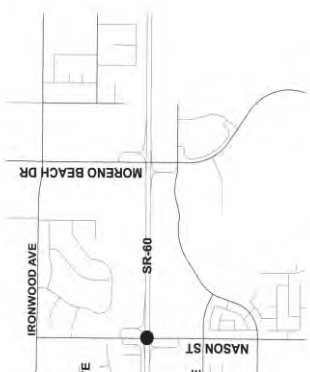
Attachment: Exhibit A - Proposed CIP FYs 2021/22 - 2022/23 (4417 : Capital Improvement Plan Fiscal Years 2021/22 - 2022/23)

CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond

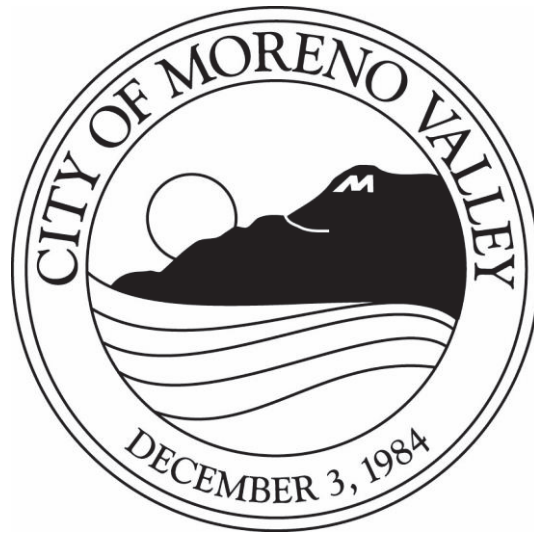


Attachment: Exhibit A - Proposed CIP FYs 2021/22 - 2022/23 (4417 : Capital Improvement Plan Fiscal Years 2021/22 - 2022/23)

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: SR-60 / Nason Street Overcrossing Bridge	Project Status: <input type="checkbox"/> New <input checked="" type="checkbox"/> In Progress <input type="checkbox"/> Completed	Project Priority in CIP Category: <input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)
Department / Division: Public Works Department / Capital Projects Division	Project Location Map: 	
<p>Project Description: This project replaced the existing SR-60 / Nason Street two-lane bridge with a four-lane bridge, completed Nason Street improvements, installed a sound wall along Elder Avenue, and constructed associated work.</p> <p>This project is active while collecting full reimbursement from Western Riverside Council of Governments (WRCOG).</p> <p>Justification or Significance of Improvement: Expansion of the current facilities was needed due to traffic demand resulting from development in the area. This was a key project in the City's Economic Development Action Plan, in order to stimulate economic development activity.</p> <p>Estimated Maintenance Costs: Bridge improvement and routine maintenance costs are estimated to average almost \$1.20 per square foot per year. Bridge surface and street maintenance costs over a 20 year period are estimated to average almost \$12,000 per 13 foot wide lane mile per year.</p>		
Council District(s): <input type="checkbox"/> District 1 <input checked="" type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4		
Life-to-Date Expenditures Through FY 2019/2020: 19,110,297		
PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget
Prelim. Eng. / Environ. Design Right of Way Construction Other	34,565	New Request FY 2021/2022 FY 2022/2023 Total
	34,565	0 0 0
FUNDING SOURCE	Budget FY 2020/2021	FY 2025/2026 and Beyond
Cap Proj Reimb (3008) 802 0003 70 77-3008 DIF Interchange (2911) 802 0003 70 77-3311	4,565 30,000	New Request FY 2022/2023 FY 2023/2024 FY 2024/2025 FY 2025/2026 and Beyond Total
	34,565	0 0 0 0 0
REVENUE TOTAL	34,565	0 0 0 0 0

CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond



Attachment: Exhibit A - Proposed CIP FYs 2021/22 - 2022/23 (4417 : Capital Improvement Plan Fiscal Years 2021/22 - 2022/23)

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Bridge Annual Inspection Program		Project Status: <input type="checkbox"/> New <input checked="" type="checkbox"/> In Progress <input type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold		Project Priority in CIP Category: <input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)			
Department / Division: Public Works Department / Capital Projects Division		CITYWIDE					
Project Description: The Bridge Annual Inspection Program assesses the need for bridge spot repair and deck treatment for bridges located within the City limits. Twenty-two (22) bridges within the City have been identified for priority maintenance inspection. Bridges that need repair and/or treatment are recommended and funded as a separate project. Construction is performed under separate City CIP project: Bridge Preventative Maintenance Program - Implementation Phase Inspection: Ongoing		Project Location Map:					
Justification of Significance of Improvement: This program assesses the need for minor repairs of existing bridges within City limits.		Council District(s): <input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4					
Estimated Maintenance Costs: Bridge improvement and routine maintenance costs are estimated to average almost \$1.20 per square foot per year. Bridge surface and street maintenance costs over a 20 year period are estimated to average almost \$12,000 per 13 foot wide lane mile per year.							
Life-to-Date Expenditures Through FY 2019/2020: 94,419							
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other	30,477	10,000	10,000	10,000	10,000	10,000	50,000
PROJECT TOTAL	30,477	10,000	10,000	10,000	10,000	10,000	50,000
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Gas Tax (2000) 802 0002 70 77-2000	30,477	10,000	10,000	10,000	10,000	10,000	50,000
REVENUE TOTAL	30,477	10,000	10,000	10,000	10,000	10,000	50,000

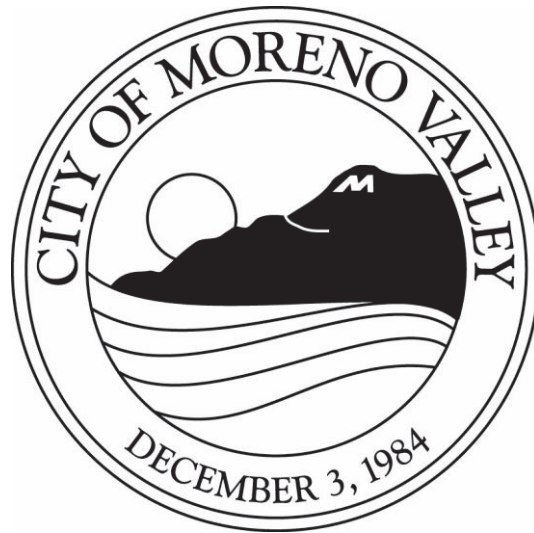
CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Bridge Preventative Maintenance Program - Implementation Phase</p> <p>Department / Division: Public Works Department / Capital Projects Division</p>		<p>Project Status:</p> <p><input type="checkbox"/> New <input checked="" type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>		<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input checked="" type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>			
<p>Project Description: The implementation phase performs engineering and prepares plans, specifications, and estimates for the most needed bridge repairs in the City, as presented and concurred by Caltrans. Caltrans provides federal funding of 88.53% with the City providing the 11.47% match. Design: July 2022 to December 2023 Construction: Subject to available funding</p> <p>Justification or Significance of Improvement: The program repairs existing bridges within City limits.</p> <p>Estimated Maintenance Costs: Bridge improvement and routine maintenance costs are estimated to average almost \$1.20 per square foot per year. Bridge surface and street maintenance costs over a 20 year period are estimated to average almost \$12,000 per 13 foot wide lane mile per year.</p>		<p>Project Location Map:</p>					
		<p>Council District(s):</p> <p><input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>					
<p>Life-to-Date Expenditures Through FY 2019/2020: 0</p>		<p>FY 21/22 - FY 22/23 Budget</p>					
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other	135,256			1,043,958 6,079,000			1,043,958 6,079,000
PROJECT TOTAL	135,256	0	0	7,122,958	0	0	7,122,958
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Gas Tax (2000) 802 0006-2000 Federal HBRR Grant (2301) 802 0006-2301	135,256			698,000 6,424,958			698,000 6,424,958
REVENUE TOTAL	135,256	0	0	7,122,958	0	0	7,122,958

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Indian Street / Cardinal Avenue Bridge (Over Lateral A)</p>		<p>Project Status: <input type="checkbox"/> New <input checked="" type="checkbox"/> In Progress <input type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>		<p>Project Priority in CIP Category: <input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>	
<p>Department / Division: Public Works Department / Capital Projects Division</p>		<p>Project Location Map:</p>			
<p>Project Description: This project will provide an approximately 150 foot long, two to four-lane bridge on Indian Street over Flood Control Channel Lateral A (at Cardinal Avenue) and associated roadway improvements on Indian Street. The bridge and roadway improvements will complete the connection of Indian Street north of the channel to south of the channel. Environmental: March 2021 to March 2022 Design: March 2021 to May 2022 Right of Way Acquisition: April 2022 to July 2022 Construction: October 2022 to July 2023 (Subject to available funding) Justification or Significance of Improvement: This project will close a gap, provide continuity in traffic, and benefit emergency responders. A future fire station is being planned for the City's south side industrial area. This bridge will enhance response time for emergencies. Estimated Maintenance Costs: Bridge improvement and routine maintenance costs are estimated to average almost \$1.20 per square foot per year. Bridge surface and street maintenance costs over a 20 year period are estimated to average almost \$12,000 per 13 foot wide lane mile per year.</p>					
<p>Life-to-Date Expenditures Through FY 2019/2020: 168,413</p>		<p>Council District(s): <input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input checked="" type="checkbox"/> District 4</p>			
<p>PROJECT PHASE</p>		<p>Budget FY 2020/2021</p>		<p>FY 21/22 - FY 22/23 Budget</p>	
<p>Prelim. Eng. / Environ. Design Right of Way Construction Other</p>		<p>300,000 543,280</p>		<p>New Request FY 2021/2022 New Request FY 2022/2023 New Request FY 2023/2024 New Request FY 2024/2025 New Request FY 2025/2026 and Beyond</p>	
<p>PROJECT TOTAL</p>		<p>843,280</p>		<p>0 0 5,500,000 0 0</p>	
<p>FUNDING SOURCE</p>		<p>Budget FY 2020/2021</p>		<p>FY 2025/2026 and Beyond</p>	
<p>DIF Arterial Street (2901) 802 0004-3301</p>		<p>843,280</p>		<p>5,500,000 5,500,000 5,500,000 5,500,000 5,500,000</p>	
<p>REVENUE TOTAL</p>		<p>843,280</p>		<p>0 0 5,500,000 0 5,500,000</p>	

CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond



b

TECHNOLOGY

BUILDINGS

CENTER

PROPOSED
CAPITAL IMPROVEMENT PLAN

fiscal years 2021/22 & 2022/23

Attachment: Exhibit A - Proposed CIP FYs 2021/22 - 2022/23 (4417 : Capital Improvement Plan Fiscal Years 2021/22 - 2022/23)

Packet Pg. 87

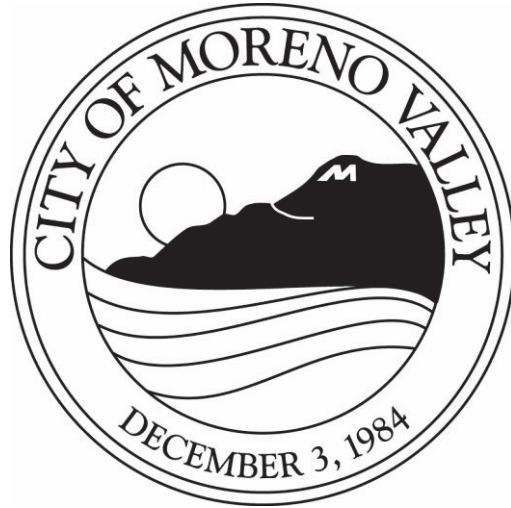


CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond

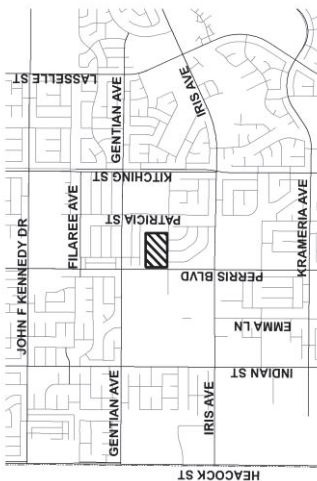
<u>Project Name</u>	<u>Page #</u>
<i>Buildings</i>	
<i>Funded Projects</i>	
Corporate Yard Building / Fleet Shop Remodel	B-3
Corporate Yard Master Plan Improvements	B-4
Electronic Marquee Sign	B-5
Fire Alarm Systems Replacement	B-6
Grand Valley Ballroom Patio Lighting	B-7
Main Library Renovation (Design)	B-8
Public Safety Building HVAC Replacement	B-9
Roof Rehabilitation	B-10
Towngate Community Center Renovation	B-11
<i>Partially Funded Projects</i>	
Park Restroom Renovations at Various Sites	B-13

Attachment: Exhibit A - Proposed CIP FYs 2021/22 - 2022/23 (4417 : Capital Improvement Plan Fiscal Years 2021/22 - 2022/23)

CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond



CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Corporate Yard Building / Fleet Shop Remodel	Project Status: <input type="checkbox"/> New <input checked="" type="checkbox"/> In Progress <input type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold	Project Priority in CIP Category: <input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)	
Department / Division: Public Works Department / Maintenance & Operations Division	Project Location Map: 		
Project Description: This project will remodel the existing Perris Boulevard Corporate Yard Administration Building to provide office space for Public Works field staff. This work includes new paint, insulation, ceiling tiles, and installation of cubicles and office furniture. Office spaces were created for Transportation, M&O, and Facilities field staff. This project will also remodel the Fleet Shop to convert previous office space into secured storage and work areas, and expand the Fleet Shop office along with new carpet tiles, paint, and a new HVAC system. There will be lighting upgrades and drainage improvements for the Fleet Shop. Schedule: Construction to be completed in phases. Justification or Significance of Improvement: Replace the existing Transportation field staff trailer to centralize the meeting/training/break/locker room facility for all Public Works maintenance staff and Parks Maintenance staff; repurpose existing Perris Boulevard Corporate Yard Administration Building to provide office space for Public Works field staff; and expand the Fleet Shop work area. Estimated Maintenance Costs: Annual average building maintenance costs are estimated at approximately \$10.00/SF. Currently no new funding source has been identified to fund these maintenance costs.	Council District(s): <input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input checked="" type="checkbox"/> District 4		
Life-to-Date Expenditures Through FY 2019/2020: 14,568			
PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget	FY 2025/2026 and Beyond
Prelim. Eng. / Environ. Design		New Request FY 2021/2022	FY 2024/2025
Right of Way Construction	485,431	New Request FY 2022/2023	FY 2023/2024
Other		New Request FY 2023/2024	FY 2022/2023
PROJECT TOTAL	485,431	0	0
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	FY 2025/2026 and Beyond
Facility Constr (2910)	485,431	New Request FY 2022/2023	FY 2024/2025
803 0042-3000		New Request FY 2023/2024	FY 2023/2024
REVENUE TOTAL	485,431	0	0

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Corporate Yard Master Plan Improvements</p>		<p>Project Status: <input type="checkbox"/> New <input checked="" type="checkbox"/> In Progress <input type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>		<p>Project Priority in CIP Category: <input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>			
<p>Department / Division: Public Works Department / Land Development Division</p>		<p>Project Location Map:</p>					
<p>Project Description: This project consists of the construction of two infiltration trenches, minor grading, installation of two catch basin filter inserts, and the conversion of the existing infiltration basin to a detention basin. Design/Construction: July 2021 to January 2022</p>		<p>Council District(s): <input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input checked="" type="checkbox"/> District 4</p>					
<p>Justification or Significance of Improvement: In order to allow future phased expansion of the Corporate Yard per the Master Plan, this project will install a storm water quality system (two infiltration trenches) in compliance with current State standards. The grading and drainage features involved in this project are necessary for State compliance. The conversion of the existing infiltration basin to a detention basin allows for historical site flow to remain until future phases are implemented. All components of the project will ensure the City of Moreno Valley's Corporate Yard is in compliance with current State regulations as the build-out of the Corporate Yard continues.</p>							
<p>Estimated Maintenance Costs: Annual average maintenance costs are estimated at approximately \$1000 for detention basin maintenance, \$300 for catch basin filter insert maintenance, and \$3000 bi-annually for storm water quality features.</p>							
<p>Life-to-Date Expenditures Through FY 2019/2020: 7,400</p>							
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design							
Right of Way Construction	189,600	25,000					25,000
Other							
PROJECT TOTAL	189,600	25,000	0	0	0	0	25,000
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Facility Constr (2910)							
803 0043-3000	189,600	25,000					25,000
REVENUE TOTAL	189,600	25,000	0	0	0	0	25,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Electronic Marquee Sign

Department / Division: Parks & Community Services Department / Parks Division

Project Description:
Installation of a large LED marquee sign at the southwest corner of Alessandro Boulevard and Frederick Street. Capital Projects Division assistance will be needed to manage this Library Services Project.

Materials: Completed
Construction: February 2021 to July 2021

Justification or Significance of Improvement:
With construction of the amphitheater, a large LED sign will publicize events and encourage attendance to the venue. The sign may also be used for general citywide announcements / public information.

Estimated Maintenance Costs:
Annual average building maintenance costs are estimated at approximately \$10/SF. Although actual maintenance costs may vary, this estimated cost is based on an industry accepted standard maintenance cost. Funding sources also vary, depending on the type of building, but the primary source of funding is Zone A.

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:

Council District(s):
 District 1
 District 2
 District 3
 District 4

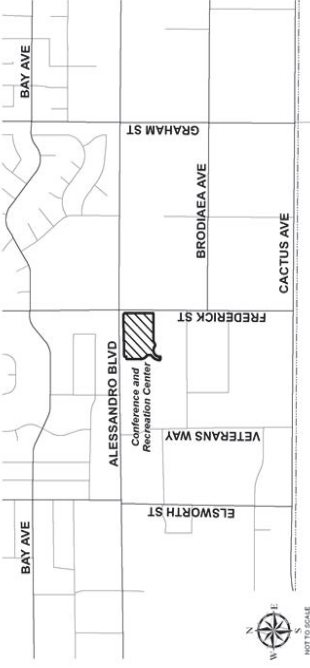
Life-to-Date Expenditures Through FY 2019/2020: 417		FY 21/22 - FY 22/23 Budget	
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023
Prelim. Eng. / Environ. Design	32,974		
Right of Way Construction	480,000		
Other			
PROJECT TOTAL	512,974	0	0
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023
Facility Constr (2909)	480,000		
803 0044-3000			
PCS Cap Proj (2019)	32,974		
803 0044-3016			
REVENUE TOTAL	512,974	0	0

	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
PROJECT TOTAL	0	0	0	0
FUNDING SOURCE	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Facility Constr (2909)				
803 0044-3000				
PCS Cap Proj (2019)				
803 0044-3016				
REVENUE TOTAL	0	0	0	0

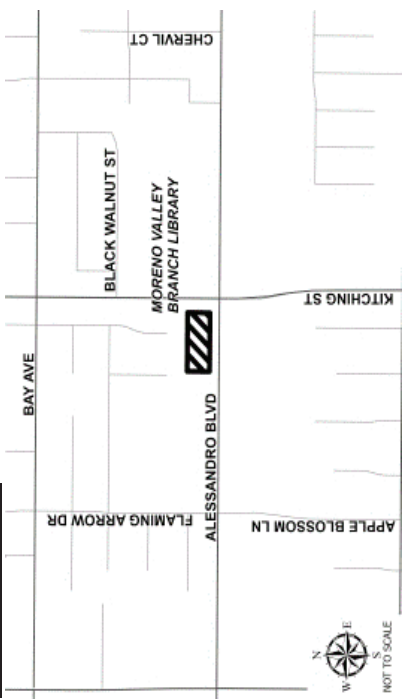
CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Fire Alarm Systems Replacement</p> <p>Department / Division: Public Works Department / Maintenance & Operations Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>					
<p>Project Location Map:</p>							
<p>Project Description: Upgrade fire alarm panels, sensors, and applicable equipment.</p> <p>Locations: Animal Shelter; Annex 1; City Hall; Conference and Recreation Center (CRC); Emergency Operations Center (EOC); Public Safety Building (PSB); Senior Center; Towngate Community Center</p> <p>Advertise / Award: December 2021 to January 2022 Construction: February 2022 to June 2023. The actual work will be split between 2 Fiscal years.</p> <p>Justification of Significance of Improvement: The fire alarm system is reaching the end of its useful life and replacement parts are scarce/costly. Based on the Facility Condition Assessment study performed in December 2018, recommendation to replace was suggested.</p> <p>Estimated Maintenance Costs: Annual average building maintenance costs are estimated at approximately \$10/SF. Although actual maintenance costs may vary, this estimated cost is based on an industry accepted standard maintenance cost. Funding sources also vary, depending on the type of building, but the primary source is the General Fund.</p>							
<p>Council District(s):</p> <p><input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>							
<p>Life-to-Date Expenditures Through FY 2019/2020: 0</p>							
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other		808,705 808,705	808,705 808,705			0	1,617,410 1,617,410
PROJECT TOTAL	0					0	1,617,410
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Facility Constr (7330) 803 XXXX-3000		808,705	808,705				1,617,410
REVENUE TOTAL	0		808,705	0	0	0	1,617,410

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Grand Valley Ballroom Patio Lighting	Project Status: <input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold	Project Priority in CIP Category: <input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)
Department / Division: Parks & Community Services Department / Parks Division	Project Location Map: 	
<p>Project Description: Install new lighting for the patio area at the Conference and Recreation Center Grand Valley Ballroom. The lighting will include ground-mounted pole/fixture LED lighting to illuminate the Ballroom patio. The style of pole/fixture will complement the adjacent amphitheater. PCS led/managed project.</p> <p>Design: July 2021 Advertise / Award: August 2021 Construction: September 2021</p> <p>Justification or Significance of Improvement: The Grand Valley Ballroom patio will be used to complement programming at the new Amphitheater. The patio is currently not lighted, and the lighting is needed for evening / nighttime programming.</p> <p>Estimated Maintenance Costs: Annual average building maintenance costs are estimated at approximately \$10/SF. Although actual maintenance costs may vary, this estimate is based on an industry accepted standard maintenance cost. Funding sources also vary, depending on the type of building, but the primary source is Zone A (CFD no. 1 for newer parks).</p>		
Life-to-Date Expenditures Through FY 2019/2020: 0		
PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget
Prelim. Eng. / Environ. Design Right of Way Construction Other	50,000 150,000 200,000 0	New Request FY 2022/2023 Total
		FY 2023/2024 FY 2024/2025 FY 2025/2026 and Beyond Total
		0 0 0 200,000
FUNDING SOURCE	Budget FY 2020/2021	FY 2025/2026 and Beyond
DIF Rec Center (2907) 803 XXXX-3000	200,000	FY 2024/2025 Total
		0 200,000
REVENUE TOTAL	0	0
		0

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Main Library Renovation (Design)	Project Status: <input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold	Project Priority in CIP Category: <input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)	
Department / Division: Parks & Community Services Department / Library Services	Project Location Map: 		
<p>Project Description: This project will provide design services and cost estimates to renovate the Main Library for ADA improvements and enhanced public and civic uses. Enhancements to include STEM space, makerspace, computer lab, gaming area, study areas, etc. Capital Projects Division assistance will be needed to manage this Library Services Project.</p> <p>Advertise / Award: August 2021 to November 2021 Design: November 2021 to June 2022</p> <p>Justification or Significance of Improvement: The renovation design will expand and customize educational and recreational opportunities at the Main Library for Moreno Valley's constituents.</p> <p>Estimated Maintenance Costs: Annual average building maintenance costs are estimated at approximately \$10/SF. Although actual maintenance costs may vary, this estimated cost is based on an industry accepted standard maintenance cost. The source of funding for maintenance and operations of the Library branch is the Library Services Fund (5010) which is a dedicated fund with revenues from property taxes and the General Fund.</p>			
Life-to-Date Expenditures Through FY 2019/2020: 0		Council District(s): <input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4	
PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget	FY 2025/2026 and Beyond
Prelim. Eng. / Environ. Design Right of Way Construction Other	250,000	New Request FY 2022/2023 250,000	FY 2024/2025 0
PROJECT TOTAL	0	0	0
FUNDING SOURCE Facility Constr (2908) 803 XXXX-3000	Budget FY 2020/2021	New Request FY 2022/2023	FY 2025/2026 and Beyond
	0	250,000	0
REVENUE TOTAL	0	0	0

Attachment: Exhibit A - Proposed CIP FYs 2021/22 - 2022/23 (4417 : Capital Improvement Plan Fiscal Years 2021/22 - 2022/23)

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Public Safety Building HVAC Replacement</p>		<p>Project Status: <input checked="" type="checkbox"/> New <input checked="" type="checkbox"/> In Progress <input type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>		<p>Project Priority in CIP Category: <input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>			
<p>Department / Division: Public Works Department / Maintenance & Operations Division</p>		<p>Project Location Map:</p>					
<p>Project Description: Replace and redesign existing HVAC system with new units and HVAC control system at the Public Safety Building (PSB). Design: Completed June 2020 Advertise / Award: August 2021 to September 2021 Construction: November 2021-March 2022</p> <p>Justification or Significance of Improvement: The purpose of the HVAC replacement project at the Public Safety Building is to replace the existing system. The current units are over 20 years old and have experienced multiple failures. In 2019, the system failed and rental units were deployed. The HVAC software is no longer supported. The Public Safety Building is a 24/7 operation.</p> <p>Estimated Maintenance Costs: Annual average building maintenance costs are estimated at approximately \$10/SF. Although actual maintenance costs may vary, this estimated cost is based on an industry accepted standard maintenance cost. Funding sources also vary, depending on the type of building, but the primary source is the General Fund.</p>		<p>Council District(s): <input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>					
<p>Life-to-Date Expenditures Through FY 2019/2020: 0</p>		<p>FY 21/22 - FY 22/23 Budget</p>					
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other		1,500,000					1,500,000
PROJECT TOTAL	0	1,500,000	0	0	0	0	1,500,000
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Facility Constr (7330) 803 XXXX-3000 Facility Constr (7510) 803 XXXX-3000		500,000 1,000,000					500,000 1,000,000
REVENUE TOTAL	0	1,500,000	0	0	0	0	1,500,000

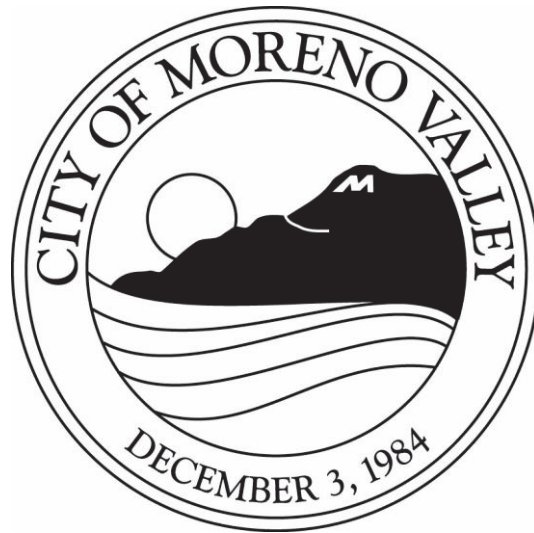
CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Roof Rehabilitation</p> <p>Department / Division: Public Works Department / Maintenance & Operations Division</p> <p>Project Description: The roof rehabilitation project consists of rehabilitating the current roofs at three City facilities which are nearing the end of their serviceable lives.</p> <p>Locations: Animal Shelter Conference and Recreation Center (CRC) March Field Park Community Center (MFPC)</p> <p>Advertise / Award: September/October 2021 Construction: December 2021 to May 2022</p> <p>Justification or Significance of Improvement: The purpose of the roof rehabilitation project is to prevent possible roof leaks and preserve the buildings infrastructure. Full roof rehabilitation is more affordable than providing ongoing isolated repairs.</p> <p>Estimated Maintenance Costs: Annual average building maintenance costs are estimated at approximately \$10/SF. Although actual maintenance costs may vary, this estimated cost is based on an industry accepted standard maintenance cost. Funding sources also vary, depending on the type of building, but the primary source is the General Fund.</p>	<p>Project Status: <input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p> <p>Project Location Map:</p> <p>Council District(s): <input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>	<p>Project Priority in CIP Category: <input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>					
<p>Life-to-Date Expenditures Through FY 2019/2020: 0</p>							
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other	0	675,000					675,000
PROJECT TOTAL	0	675,000	0	0	0	0	675,000
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Facility Constr (7330) 803 XXXX-3000 Zone A Parks (5011) 803 XXXX-5011	0	141,281 533,719					141,281 533,719
REVENUE TOTAL	0	675,000	0	0	0	0	675,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Towngate Community Center Renovation</p> <p>Department / Division: Parks & Community Services Department / Parks Division</p>		<p>Project Status:</p> <p><input type="checkbox"/> New <input checked="" type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>		<p>Project Priority in CIP Category:</p> <p><input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>			
<p>Project Description: This project will replace the existing wood patio cover at Towngate Community Center with an alumawood cover. PCS led/managed project. M&O assistance needed with construction.</p> <p>Construction of flooring, windows, and lighting: Completed Construction: January 2021 to December 2021 (Patio cover)</p> <p>Justification or Significance of Improvement: The center is approximately 15 years old and is frequently rented. The patio cover has extensive damage from dry rot.</p> <p>Estimated Maintenance Costs: Annual park maintenance costs average approximately \$12,000 / acre based on budget information provided by the Parks Maintenance Division. Actual maintenance costs may vary depending on the size and amenities of the site. Parks maintenance is typically funded by Zone A (CDF No. 1 for newer parks).</p>		<p>Project Location Map:</p>		<p>Council District(s):</p> <p><input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>			
<p>Life-to-Date Expenditures Through FY 2019/2020: 53,332</p>		<p>FY 21/22 - FY 22/23 Budget</p>					
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design							
Right of Way Construction	76,668						
Other							
PROJECT TOTAL	76,668	0	0	0	0	0	0
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
PCS Cap Proj (2019)							
803 0031-3016	16,668						
CFD #1 (5113)							
803 0031-5113	60,000						
REVENUE TOTAL	76,668	0	0	0	0	0	0

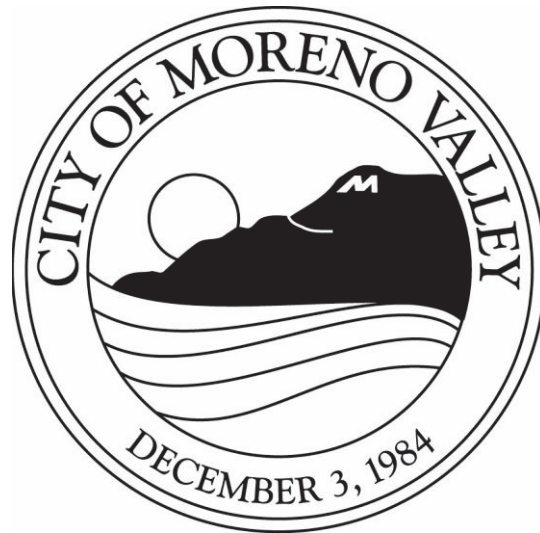
CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond



CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Park Restroom Renovations at Various Sites</p>		<p>Project Status: <input type="checkbox"/> New <input checked="" type="checkbox"/> In Progress <input type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>		<p>Project Priority in CIP Category: <input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferable (Start within 5 to 10 yrs)</p>			
<p>Department / Division: Parks & Community Services Department / Parks Division</p>		<p>Project Location Map:</p>					
<p>Project Description: Renovation of citywide park restrooms will include replacement of fixtures (commodes, urinals, sinks, faucets), stall partitions, hand dryers and/or paper towel dispensers, and hand soap dispensers, new interior and exterior paint, upgraded lighting, and roofing replacement. The project at Moreno Valley Community Park includes replacement of an existing sewer line to the main sewer trunk in the street. Capital Projects Division assistance will be needed to manage this Parks Division Project. PCS led/managed project.</p> <p>Construction: FY 21/22 Projected Sites: Westbluff Park & Moreno Valley Community Park FY 22/23 Projected Sites: TBD</p> <p>Justification or Significance of Improvement: Renovation of park restrooms is necessary due to aging structures. This will include roofing, interior walls, and fixtures</p> <p>Estimated Maintenance Costs: Annual average building maintenance costs are estimated at approximately \$10/SF. Although actual maintenance costs may vary, this estimated cost is based on an industry accepted standard maintenance cost. Funding sources also vary, depending on the type of building, but the primary source is Zone A.</p>		<p>Council District(s): <input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>					
<p>Life-to-Date Expenditures Through FY 2019/2020: 117,074</p>		<p>FY 21/22 - FY 22/23 Budget</p>					
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design							
Right of Way Construction	140,925	200,000	30,000	30,000	30,000	30,000	320,000
Other							
PROJECT TOTAL	140,925	200,000	30,000	30,000	30,000	30,000	320,000
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
PCS Cap Proj (2019) 803 0030-3016	140,925	200,000	30,000	30,000	30,000	30,000	320,000
REVENUE TOTAL	140,925	200,000	30,000	30,000	30,000	30,000	320,000

CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond



Attachment: Exhibit A - Proposed CIP FYs 2021/22 - 2022/23 (4417 : Capital Improvement Plan Fiscal Years 2021/22 - 2022/23)



DRAINAGE

PROPOSED
CAPITAL IMPROVEMENT PLAN

fiscal years 2021/22 & 2022/23

Attachment: Exhibit A - Proposed CIP FYs 2021/22 - 2022/23 (4417 : Capital Improvement Plan Fiscal Years 2021/22 - 2022/23)

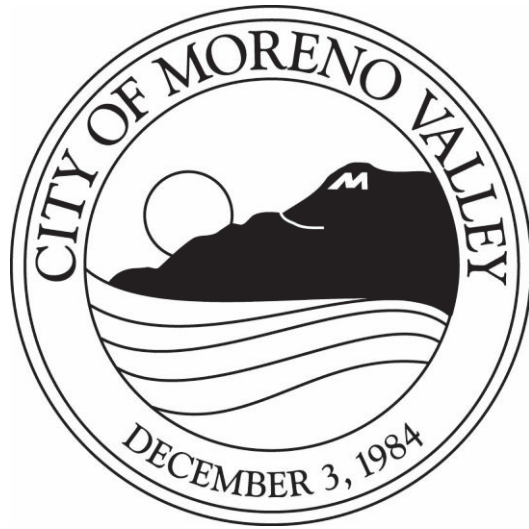


CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond

<u>Project Name</u>	<u>Page #</u>
<i>Drainage</i>	
<i>Funded Projects</i>	
Moreno MDP Line F-18 and F-19	D-3
Sunnymead - Flaming Arrow Drive Storm Drain	D-4
Sunnymead MDP Line B-16A	D-5
<i>Partially Funded Projects</i>	
Citywide Full Trash Capture Device Installation	D-7
Moreno MDP Line K-1, K-4 Stg 3	D-8
Sunnymead Master Drainage Plan - Storm Drain Lines F and F-7	D-9

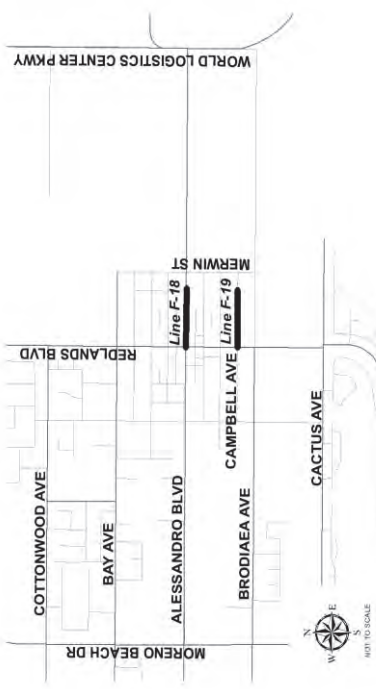
Attachment: Exhibit A - Proposed CIP FYs 2021/22 - 2022/23 (4417 : Capital Improvement Plan Fiscal Years 2021/22 - 2022/23)

CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond



Attachment: Exhibit A - Proposed CIP FYs 2021/22 - 2022/23 (4417 : Capital Improvement Plan Fiscal Years 2021/22 - 2022/23)

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Moreno MDP Line F-18 and F-19		Project Status: <input type="checkbox"/> New <input checked="" type="checkbox"/> In Progress <input type="checkbox"/> Completed		Project Priority in CIP Category: <input type="checkbox"/> Essential (Start within 1 yr) <input checked="" type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)			
Department / Division: Public Works Department / Capital Projects Division		Project Location Map: 					
Project Description: This project is to install Storm Drain Lines F-18 and F-19 in Moreno Townsite Area. Line F-18 is in Alessandro Boulevard between Redlands Boulevard and Merwin Street. Line F-19 is in Campbell Avenue between Redlands Boulevard and Merwin Street. These two storm drains are to be connected to the existing storm drain Line F-2 running north-south along Redlands Boulevard. Riverside County Flood Control Area Drainage Plan (ADP) fees are used to fund the final design and construction of the project. Design: January 2021 to December 2021 Advertise / Award: TBD pending final funding allocation by RCFC&WCD Construction: TBD pending final funding allocation by RCFC&WCD		Justification or Significance of Improvement: The proposed storm drains are to mitigate flooding for the Moreno Townsite Area and had been identified in the Riverside County Flood Control District's master plan. Estimated Maintenance Costs: The Riverside County Flood Control and Water Conservation District will maintain pipes larger than 36" diameter. City will maintain pipes 36" diameter or smaller. Annual average costs associated with storm drain maintenance are estimated at approximately \$121 per catch basin. This does not include actual catch basin and/or pipeline replacement, which typically have lifespans of 70 to 100 years. Although actual maintenance costs may vary, these estimated maintenance costs are based on historical maintenance costs for the City of Moreno Valley's storm drain infrastructure. Drainage maintenance funding will be part of the deferred maintenance for the whole network.					
Life-to-Date Expenditures Through FY 2019/2020: 89,423		FY 21/22 - FY 22/23 Budget					
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design	250,000						
Right of Way Construction	1,889,382						
Other							
PROJECT TOTAL	2,139,382	0	0	0	0	0	0
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Measure A (2001)							
804 0017-2001	139,382						
PW Gen Cap Proj (3002)							
804 0017-3002	2,000,000						
REVENUE TOTAL	2,139,382	0	0	0	0	0	0

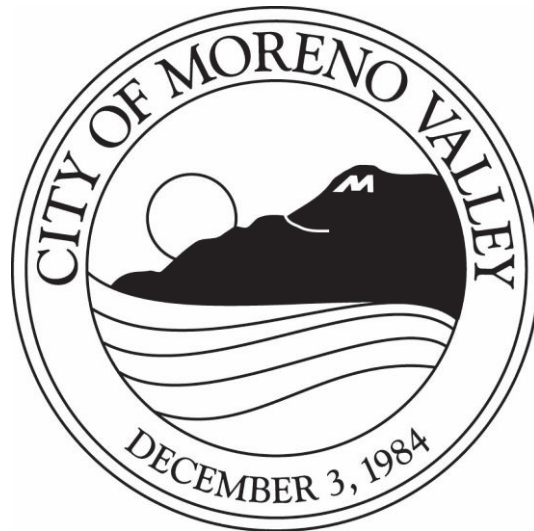
CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Sunnymead - Flaming Arrow Drive Storm Drain</p> <p>Department / Division: Public Works Department / Capital Projects Division</p>		<p>Project Status:</p> <p><input type="checkbox"/> New <input checked="" type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>		<p>Project Priority in CIP Category:</p> <p><input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>			
<p>Project Description:</p> <p>This project will extend Sunnymead Master Drainage (MDP) Storm Drain Line M-11. The storm drain alignment will be in Flaming Arrow Drive and Sweet Grass Drive, between Saint Christopher Lane and Bay Avenue. Approximately 1200 LF of 24" diameter pipe will be installed.</p> <p>Preliminary Engineering / Environmental: Completed Design and Right of Way: Completed Utility Relocation: Completed Construction: March 2021 to September 2021</p> <p>Justification or Significance of Improvement:</p> <p>This project will provide necessary drainage improvements for the area.</p> <p>Estimated Maintenance Costs:</p> <p>Annual average costs associated with storm drain maintenance are estimated at approximately \$121 per catch basin. This does not include actual catch basin and/or pipeline replacement, which typically have lifespans of 70 to 100 years. Although actual maintenance costs may vary, these estimated maintenance costs are based on historical maintenance costs for the City of Moreno Valley's storm drain infrastructure. Drainage maintenance funding will be part of the deferred maintenance for the whole network.</p>		<p>Project Location Map:</p>					
<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>							
<p>Life-to-Date Expenditures Through FY 2019/2020: 149,269</p>							
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design							
Right of Way	777,372						
Construction							
Other							
PROJECT TOTAL	777,372	0	0	0	0	0	0
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Measure A (2001)							
804 0014-2001	135,845						
CDBG (2512)							
804 0014-2512	250,000						
PW Gen Cap Proj (3002)							
804 0014-3002	391,527						
REVENUE TOTAL	777,372	0	0	0	0	0	0

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Sunnymead MDP Line B-16A</p> <p>Department / Division: Public Works Department / Capital Projects Division</p>	<p>Project Status:</p> <p><input type="checkbox"/> New <input checked="" type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input checked="" type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>					
<p>Project Location Map:</p>							
<p>Project Description:</p> <p>This project is to install Storm Drain Line B-16A in Kitching Street from Ironwood Avenue to Kalmia Avenue. It is estimated that approximately 2,900 lineal feet of 24 inch to 36 inch diameter pipe will be installed. Riverside County Flood Control and Water Conservation District (RCFC&WCD) has entered into a cooperative agreement with the City and funded \$1.9 Million for the project. The City will secure the necessary right of way, design and complete project construction.</p> <p>Design: October 2020 to July 2021 Right of Way: June 2018 to June 2021 Construction: October 2021 to June 2022</p> <p>Justification or Significance of Improvement:</p> <p>This project will assist in eliminating flooding along Kitching Street and surrounding areas.</p> <p>Estimated Maintenance Costs:</p> <p>Annual average costs associated with storm drain maintenance are estimated at approximately \$121 per catch basin. This does not include actual catch basin and/or pipeline replacement, which typically have lifespans of 70 to 100 years. Although actual maintenance costs may vary, these estimated maintenance costs are based on historical maintenance costs for the City of Moreno Valley's storm drain infrastructure. Drainage maintenance funding will be part of the deferred maintenance for the whole network.</p>							
<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input checked="" type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>							
<p>Life-to-Date Expenditures Through FY 2019/2020: 16,615</p>							
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ.	199,275						
Design	30,000						
Right of Way	1,695,384						
Construction							
Other							
PROJECT TOTAL	1,924,659	0	0	0	0	0	0
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
PW Gen Cap Proj (3002)	1,924,659						
804 0015-3002							
REVENUE TOTAL	1,924,659	0	0	0	0	0	0

CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond




Attachment: Exhibit A - Proposed CIP FYs 2021/22 - 2022/23 (4417 : Capital Improvement Plan Fiscal Years 2021/22 - 2022/23)

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Citywide Full Trash Capture Device Installation		Project Status: <input type="checkbox"/> New <input checked="" type="checkbox"/> In Progress <input type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold		Project Priority in CIP Category: <input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferable (Start within 5 to 10 yrs)			
Department / Division: Public Works Department / Land Development Division		Project Location Map: CITYWIDE					
Project Description: This project consists of the purchase and installation of connector pipe screen (CPS) units (which are designed to filter out certain size debris/trash from storm drain discharge to receiving water bodies) in approximately 968 catch basins in the City. Approximately 100 CPS units will be installed annually over the period of ten years. Justification or Significance of Improvement: To ensure compliance with the State mandated Trash Provisions, the City must install full trash capture devices on all priority use land area catch basins by 2030. There is a ten percent annual compliance requirement within the Trash Provisions. Installation: On-going		Council District(s): <input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4					
Estimated Maintenance Costs: Annual average costs associated with each Trash Capture Device is approximately \$400 (\$200/ twice a year).							
Life-to-Date Expenditures Through FY 2019/2020: 0							
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Installation Other	160,000	80,000	80,000	80,000	80,000	456,000	776,000
PROJECT TOTAL	160,000	80,000	80,000	80,000	80,000	456,000	776,000
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Storm Water Mgmt (2008) 804 0018-2008	160,000	80,000	80,000	80,000	80,000	456,000	776,000
REVENUE TOTAL	160,000	80,000	80,000	80,000	80,000	456,000	776,000

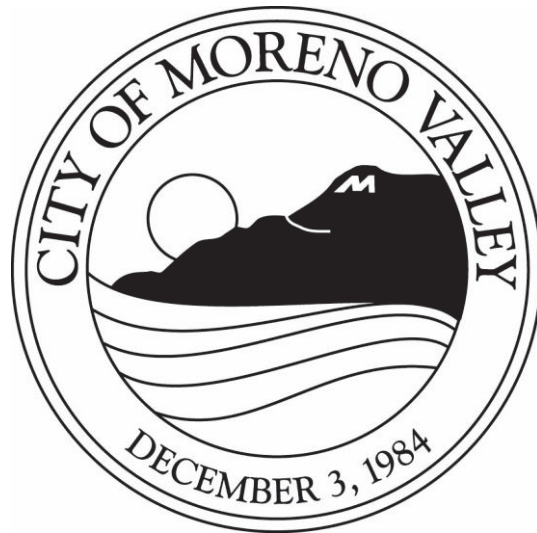
CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Moreno MDP Line K-1, K-4 Stg 3	Department / Division: Public Works Department / Capital Projects Division	Project Status: <input type="checkbox"/> New <input checked="" type="checkbox"/> In Progress <input type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold	Project Priority in CIP Category: <input type="checkbox"/> Essential (Start within 1 yr) <input checked="" type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferable (Start within 5 to 10 yrs)	Project Location Map:  Council District(s): <input type="checkbox"/> District 1 <input checked="" type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4			
Project Description: This project is to install a storm drain system in Locust Avenue, Carrie Lane, Kalmia Avenue, and Pettit Street to mitigate flooding for the San Timoteo Foothill Neighborhood area. Future Riverside County Flood Control Area Drainage Plan (ADP) fees are used to fund the final design and construction of this project. Preliminary Design and Environmental: Completed Design: TBD (subject to funding availability) Advertise/Award: TBD (subject to funding availability) Construction: TBD (subject to funding availability) Justification of Significance of Improvement: This project will provide necessary drainage improvements and mitigate flooding hazards for the area with a protection level up to 100-year storm. This project is part of the Moreno Master Drainage Plan (MDP) for the area. Estimated Maintenance Costs: Annual average costs associated with storm drain maintenance are estimated at approximately \$121 per catch basin. This does not include actual catch basin and/or pipeline replacement, which typically have lifespans of 70 to 100 years. Although actual maintenance costs may vary, these estimated maintenance costs are based on historical maintenance costs for the City of Moreno Valley's storm drain infrastructure. Drainage maintenance funding will be part of the deferred maintenance for the whole network.							
Life-to-Date Expenditures Through FY 2019/2020: 548,044							
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other	43,990					3,014,000	3,014,000
PROJECT TOTAL	43,990	0	0	0	0	3,014,000	3,014,000
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Measure A (2001) 804 0007 70 77-2001 Unfunded (UNF) UNF	43,990					3,014,000	3,014,000
REVENUE TOTAL	43,990	0	0	0	0	3,014,000	3,014,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Sunnymead Master Drainage Plan - Storm Drain Lines F and F-7</p>		<p>Project Status:</p> <p><input type="checkbox"/> New <input checked="" type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>		<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input checked="" type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferable (Start within 5 to 10 yrs)</p>			
<p>Department / Division: Public Works Department / Capital Projects Division</p>		<p>Project Location Map:</p>					
<p>Project Description:</p> <p>The project involves the preliminary design and environmental documentation of Line F and Line F-7 storm drain system in the Sunnymead Master Drainage Plan. Line F includes 1,400 feet of storm drain starting from Hemlock Avenue east of Pigeon Pass Road, going south past SR-60 and Sunnymead Boulevard, to approximately 100 feet south of Sunnymead Boulevard. The lateral (Line F-7) storm drain of 1,400 feet starting from the intersection of Hemlock Avenue and Graham Street to the west will be connected to Line F in Hemlock Avenue. The final design and construction phase are subject to funding availability.</p> <p>Preliminary Design and Environmental Documentation: Completed Advertise / Award: TBD (Subject to available funding) Construction: TBD (Subject to available funding)</p>		<p>Justification or Significance of Improvement: The project is located within CDBG target area and will mitigate flooding that occurs in the vicinity of Hemlock Avenue, Graham Street, Sunnymead Boulevard and areas south of Sunnymead Boulevard and will minimize flood related damages to public facilities and private properties.</p> <p>Estimated Maintenance Costs: Annual average costs associated with storm drain maintenance are estimated at approximately \$121 per catch basin. This does not include actual catch basin and/or pipeline replacement, which typically have lifespans of 70 to 100 years. Although actual maintenance costs may vary, these estimated maintenance costs are based on historical maintenance costs for the City of Moreno Valley's storm drain infrastructure. Drainage maintenance funding will be part of the deferred maintenance for the whole network.</p>					
<p>Life-to-Date Expenditures Through FY 2019/2020: 650,000</p>		<p>FY 21/22 - FY 22/23 Budget</p>					
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ.	140,000	300,000					300,000
Design		400,000					400,000
Right of Way		1,100,000				6,900,000	1,100,000
Construction							6,900,000
Other							
PROJECT TOTAL	140,000	1,800,000	0	0	0	6,900,000	8,700,000
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Measure A (2001)							
804 0008-2001	35,000						
Cap Proj Grants (2301)							
804 0008-2301	105,000						
PW Gen Cap Proj (3002)							
804 0008-3002		1,800,000					1,800,000
Unfunded (UNF)							
UNF							
REVENUE TOTAL	140,000	1,800,000	0	0	0	6,900,000	8,700,000

CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond





ELECTRIC UTILITY

PROPOSED CAPITAL IMPROVEMENT PLAN

fiscal years 2021/22 & 2022/23

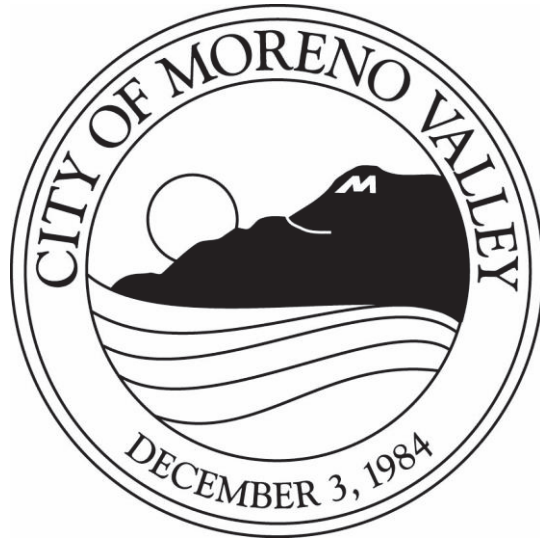


CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond

<u>Project Name</u>	<u>Page #</u>
<i>Electric Utility</i>	
<i>Funded Projects</i>	
Alessandro / Day / Cactus Loop	E-3
Curbside Electric Vehicle Charging Station	E-4
Electric Vehicle Charging Station Corporate Yard	E-5
Electrical System Automation	E-6
Eucalyptus Avenue Line Extension	E-7
Gas Switch Alternatives	E-8
Indian Street Line Extension from Gentian Avenue to Iris Avenue	E-9
iS5 Network Cyber Security	E-10
Moreno Beach Bridge Conduit	E-11
Moreno Beach Drive Line Extension from Cactus Avenue to John F. Kennedy Drive	E-12
Moreno Valley Fire Station #6 SCE to MVU Cutover	E-13
MoVal Substation Relay Upgrades	E-14
Nason Street Loop Tie from Iris Avenue to Cactus Avenue	E-15
<i>Partially Funded Projects</i>	
None Listed	

Attachment: Exhibit A - Proposed CIP FYs 2021/22 - 2022/23 (4417 : Capital Improvement Plan Fiscal Years 2021/22 - 2022/23)

CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond



Attachment: Exhibit A - Proposed CIP FYs 2021/22 - 2022/23 (4417 : Capital Improvement Plan Fiscal Years 2021/22 - 2022/23)

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Alessandro / Day / Cactus Loop</p> <p>Department / Division: Public Works Department / Electric Utility Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input checked="" type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>
<p>Project Location Map:</p>		
<p>Project Description: This project will install 2,660 LF of new backbone conduit and cable along Day Street and Cactus Avenue.</p> <p>Environmental: July 2022 to September 2022 Design: October 2022 to December 2022 Construction: January 2023 to June 2023</p> <p>Justification or Significance of Improvement: This project will improve system reliability and provide a loop feed for future projects and the Cactus Commerce project along Day Street and Cactus Avenue.</p> <p>Estimated Maintenance Costs: Ongoing maintenance costs are built into Moreno Valley Utilities rate structure as part of the cost to serve.</p>		
<p>Council District(s):</p> <p><input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>		
<p>Life-to-Date Expenditures Through FY 2019/2020: 0</p>		
	<p>New Request FY 2021/2022</p>	<p>New Request FY 2022/2023</p>
PROJECT PHASE	Budget FY 2020/2021	FY 2023/2024
Prelim. Eng. / Environ. Design Right of Way Construction Other	1,000 49,000 1,160,000 0	0 0 0 0
PROJECT TOTAL	0	1,210,000
FUNDING SOURCE	Budget FY 2020/2021	FY 2025/2026 and Beyond
Electric-Restricted (6011) 805 XXXX-6011	1,210,000	0
REVENUE TOTAL	0	1,210,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Curbside Electric Vehicle Charging Station</p> <p>Department / Division: Public Works Department / Electric Utility Division</p>		<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> Deleted</p> <p><input type="checkbox"/> In Progress <input type="checkbox"/> On Hold</p> <p><input type="checkbox"/> Completed</p>		<p>Project Priority in CIP Category:</p> <p><input checked="" type="checkbox"/> Essential (Start within 1 yr)</p> <p><input type="checkbox"/> Necessary (Start within 1 to 3 yrs)</p> <p><input type="checkbox"/> Desirable (Start within 3 to 5 yrs)</p> <p><input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>																																									
<p>Project Description:</p> <p>Install a curbside electric vehicle charging station (one Level 2 charger) on Davis Street in The District commercial/industrial area. This will be the City's first curbside installation of an electric vehicle charging station.</p> <p>Environmental: September 2021 to October 2021 Design: November 2021 to January 2022 Construction: February 2022 to May 2022</p> <p>Justification or Significance of Improvement: There are currently no City-owned electric vehicle charging stations north of SR-60. Curbside charging near commercial areas is convenient for electric vehicle owners. Providing a curbside charging station that will be accessible to the public 24/7 will provide a convenient location to serve the community and visitors to Moreno Valley.</p> <p>Estimated Maintenance Costs: Ongoing maintenance costs are built into Moreno Valley Utilities rate structure as part of the cost to serve.</p>		<p>Project Location Map:</p> <p>Council District(s): <input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>																																											
<p>Life-to-Date Expenditures Through FY 2019/2020: 0</p>		<p>FY 21/22 - FY 22/23 Budget</p> <table border="1"> <thead> <tr> <th>PROJECT PHASE</th> <th>Budget FY 2020/2021</th> <th>New Request FY 2021/2022</th> <th>New Request FY 2022/2023</th> <th>FY 2023/2024</th> <th>FY 2024/2025</th> <th>FY 2025/2026 and Beyond</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>Prelim. Eng. / Environ. Design</td> <td></td> <td>1,000</td> <td></td> <td></td> <td></td> <td></td> <td>1,000</td> </tr> <tr> <td>Right of Way Construction</td> <td></td> <td>15,000</td> <td></td> <td></td> <td></td> <td></td> <td>15,000</td> </tr> <tr> <td>Other</td> <td></td> <td>50,000</td> <td></td> <td></td> <td></td> <td></td> <td>50,000</td> </tr> <tr> <td>PROJECT TOTAL</td> <td>0</td> <td>66,000</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>66,000</td> </tr> </tbody> </table>				PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total	Prelim. Eng. / Environ. Design		1,000					1,000	Right of Way Construction		15,000					15,000	Other		50,000					50,000	PROJECT TOTAL	0	66,000	0	0	0	0	66,000
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total																																						
Prelim. Eng. / Environ. Design		1,000					1,000																																						
Right of Way Construction		15,000					15,000																																						
Other		50,000					50,000																																						
PROJECT TOTAL	0	66,000	0	0	0	0	66,000																																						
<p>FUNDING SOURCE Electric-Restricted (6011) 805 XXXX-6011</p>		<table border="1"> <thead> <tr> <th>New Request FY 2021/2022</th> <th>New Request FY 2022/2023</th> <th>FY 2023/2024</th> <th>FY 2024/2025</th> <th>FY 2025/2026 and Beyond</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>66,000</td> <td></td> <td></td> <td></td> <td></td> <td>66,000</td> </tr> </tbody> </table>				New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total	66,000					66,000																												
New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total																																								
66,000					66,000																																								
<p>REVENUE TOTAL</p>		<table border="1"> <thead> <tr> <th>New Request FY 2021/2022</th> <th>New Request FY 2022/2023</th> <th>FY 2023/2024</th> <th>FY 2024/2025</th> <th>FY 2025/2026 and Beyond</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>66,000</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>66,000</td> </tr> </tbody> </table>				New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total	66,000	0	0	0	0	66,000																												
New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total																																								
66,000	0	0	0	0	66,000																																								

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Electric Vehicle Charging Station Corporate Yard</p> <p>Department / Division: Public Works Department / Electric Utility Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>					
<p>Project Description: This project will install electric vehicle charging stations (two Level 2 and one Level 3 chargers) at the City's Corporate Yard public parking lot and install electrical infrastructure that will "make ready" future electric vehicle charging stations in the Corporate Yard's fleet parking lot.</p> <p>Environmental: September 2021 to October 2021 Design: November 2021 to January 2022 Construction: February 2022 to May 2022</p> <p>Justification or Significance of Improvement: The nearest charging station is 2.90 miles from the City's Corporate Yard. Providing a charging station that will be accessible to the public 24/7 will provide a convenient location to serve the community and visitors to Moreno Valley.</p> <p>Estimated Maintenance Costs: Ongoing maintenance costs are built into Moreno Valley Utilities rate structure as part of the cost to serve.</p>							
<p>Project Location Map:</p>							
<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input checked="" type="checkbox"/> District 4</p>							
<p>Life-to-Date Expenditures Through FY 2019/2020: 0</p>							
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other		1,000 15,000 100,000					1,000 15,000 100,000
PROJECT TOTAL	0	116,000	0	0	0	0	116,000
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Electric-Restricted (6011) 805 XXXX-6011		116,000					116,000
REVENUE TOTAL	0	116,000	0	0	0	0	116,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Electrical System Automation		Project Status: <input type="checkbox"/> New <input checked="" type="checkbox"/> In Progress <input type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold		Project Priority in CIP Category: <input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)			
Department / Division: Public Works Department / Electric Utility Division		Project Location Map: CITYWIDE					
Project Description: This project will build automation, communication, and protection circuits that serve critical customers in the system. Potential circuits are: Redlands 12KV, Cottonwood 12KV, Heacock 12KV, and Grove View 12KV. Design: January 2021 to December 2021 Construction: January 2022 to June 2022 Justification or Significance of Improvement: This project will provide additional reliability for MVU customers and provide greater flexibility for MVU in the management of the electrical distribution system. Estimated Maintenance Costs: Ongoing maintenance costs are built into Moreno Valley Utility's rate structure as part of the cost to serve.		Council District(s): <input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4					
Life-to-Date Expenditures Through FY 2019/2020: 1,137							
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Equipment Procurement Construction Other	100,000 1,398,862 1,000,000						
PROJECT TOTAL	2,498,862	0	0	0	0	0	0
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Electric-Restricted (6011) 805 0046-6011	2,498,862						
REVENUE TOTAL	2,498,862	0	0	0	0	0	0

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Eucalyptus Avenue Line Extension</p> <p>Department / Division: Public Works Department / Electric Utility Division</p>		<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input checked="" type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input checked="" type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>		<p>Project Priority in CIP Category:</p> <p><input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>			
<p>Project Description:</p> <p>This project will install new electrical backbone facilities including conduit, cable, underground structures, pad mounted equipment, switchgear, and splicing components.</p> <p>Environmental: February 2020 to March 2020 Design: April 2020 to May 2020 Bid / Award: March 2021 to June 2021 Pre-Construction: July 2021 to September 2021 Construction: October 2021 to December 2021</p> <p>Justification or Significance of Improvement:</p> <p>The installation will extend distribution cable on Eucalyptus Avenue between Day Street and Memorial Way and on Memorial Way between Eucalyptus Avenue and Gateway Drive in order to provide electrical service to remaining vacant parcels at the Towngate Center.</p> <p>Estimated Maintenance Costs:</p> <p>Ongoing maintenance costs are built into Moreno Valley Utility's rate structure as part of the cost to serve.</p>		<p>Project Location Map:</p> <p>Council District(s):</p> <p><input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>					
<p>Life-to-Date Expenditures Through FY 2019/2020: 19,116</p>		<p>FY 21/22 - FY 22/23 Budget</p>					
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Equipment Procurement Construction Other	545,883	591,536					591,536
PROJECT TOTAL	545,883	591,536	0	0	0	0	591,536
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Electric-Restricted (6011) 805 0055-6011	545,883	591,536					591,536
REVENUE TOTAL	545,883	591,536	0	0	0	0	591,536

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Gas Switch Alternatives</p> <p>Department / Division: Public Works Department / Electric Utility Division</p>		<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>		<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input checked="" type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>			
<p>Project Description: This project will install solid dielectric switches as an alternative to gas switches at strategic locations along the Day Street Line Extension project. This will reduce the outages on existing customers when future projects get energized.</p> <p>Environmental: July 2022 to September 2022 Design: October 2022 to December 2022 Construction: January 2023 to June 2023</p> <p>Justification or Significance of Improvement: Installing switches to serve future development projects will eliminate outages to future customers.</p> <p>Estimated Maintenance Costs: Ongoing maintenance costs are built into Moreno Valley Utilities rate structure as part of the cost to serve.</p>		<p>Project Location Map:</p>					
		<p>Council District(s):</p> <p><input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>					
<p>Life-to-Date Expenditures Through FY 2019/2020: 0</p>		<p>FY 21/22 - FY 22/23 Budget</p>					
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other			500 37,000 650,000				500 37,000 650,000
PROJECT TOTAL	0	0	687,500	0	0	0	687,500
FUNDING SOURCE Electric-Restricted (6011) 805 XXXX-6011	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
			687,500				687,500
REVENUE TOTAL	0	0	687,500	0	0	0	687,500

CITY OF MORENO VALLEY
 Capital Improvement Plan - Project Details
 FYs 2021-2026 and Beyond

<p>Project Title: Indian Street Line Extension from Gentian Avenue to Iris Avenue</p>		<p>Project Status: <input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>		<p>Project Priority in CIP Category: <input type="checkbox"/> Essential (Start within 1 yr) <input checked="" type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>		
<p>Department / Division: Public Works Department / Electric Utility Division</p>		<p>Project Location Map:</p>				
<p>Project Description: This project will install a new backbone along Indian Street. It will include cable on Indian Street from Gentian Avenue to Santiago Drive in the existing conduit system, and new conduit and cable on Indian Street from Santiago Drive to Iris Avenue.</p> <p>Environmental: July 2022 to September 2022 Design: October 2022 to December 2022 Construction: January 2023 to June 2023</p> <p>Justification of Significance of Improvement: This will improve system reliability/service-restoration by creating a loop feed in the circuit.</p> <p>Estimated Maintenance Costs: Ongoing maintenance costs are built into Moreno Valley Utilities rate structure as part of the cost to serve.</p>		<p>Council District(s): <input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input checked="" type="checkbox"/> District 4</p>				
<p>Life-to-Date Expenditures Through FY 2019/2020: 0</p>		<p>FY 21/22 - FY 22/23 Budget</p>		<p>FY 2025/2026 and Beyond</p>		
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other			1,000 20,000 1,125,200			1,000 20,000 1,125,200
PROJECT TOTAL	0	0	1,146,200	0	0	1,146,200
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	Total
Electric-Restricted (6011) 805 XXXX-6011			1,146,200			1,146,200
REVENUE TOTAL	0	0	1,146,200	0	0	1,146,200

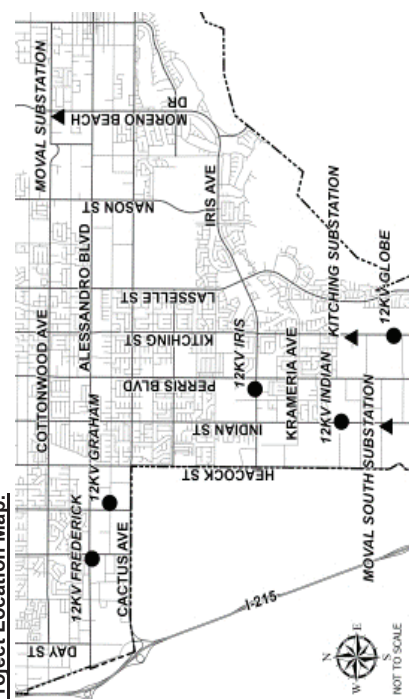
CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: iS5 Network Cyber Security

Department / Division: Public Works Department / Electric Utility Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:


Project Description:
 In support of MVU's Cyber Security Response Plan, this project will implement a cyber security strategy, including installation of hardware, software, processes, and procedures to prevent and monitor potential cyber threats and restoration in response to intrusions.
 Design: July 2021 to December 2021
 Construction: January 2022 to June 2022

Justification or Significance of Improvement:
 This will enable MVU to monitor and report any potential cyber security intrusions that could effect the operation of the utility.

Estimated Maintenance Costs:
 Ongoing maintenance costs are built into Moreno Valley Utilities rate structure as part of the cost to serve.

Council District(s):
 District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	Life-to-Date Expenditures Through FY 2019/2020: 0					Total
		FY 2021/2022	FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other	10,000						10,000
PROJECT TOTAL	0	0	0	0	0	0	85,000 95,000
FUNDING SOURCE Electric-Restricted (6011) 805 XXXX-6011							
REVENUE TOTAL	0	0	0	0	0	0	95,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Moreno Beach Bridge Conduit</p> <p>Department / Division: Public Works Department / Electric Utility Division</p>	<p>Project Status:</p> <p><input type="checkbox"/> New <input checked="" type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>					
<p>Project Location Map:</p>							
<p>Project Description: This project is part of the SR-60 / Moreno Beach Drive Interchange (Phase 2) Project. The scope of this project includes installing conduits, street lights, and meter within the bridge crossing at Moreno Beach Bridge to serve future electrical load and increase system reliability.</p> <p>Design: Completed Advertise / Award: Completed Construction: May 2021 to November 2022</p> <p>Justification or Significance of Improvement: This project improves the capacity of the MVU service territory and increases reliability for new developments.</p> <p>Estimated Maintenance Costs: Ongoing maintenance costs are built into Moreno Valley Utility's rate structure as part of the cost to serve.</p>							
<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input checked="" type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>							
<p>Life-to-Date Expenditures Through FY 2019/2020: 5,088</p>							
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other	44,911 450,000 494,911	400,000					400,000
PROJECT TOTAL		400,000	0	0	0	0	400,000
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Electric-Restricted (6011) 805 0056-6011	494,911	400,000					400,000
REVENUE TOTAL	494,911	400,000	0	0	0	0	400,000

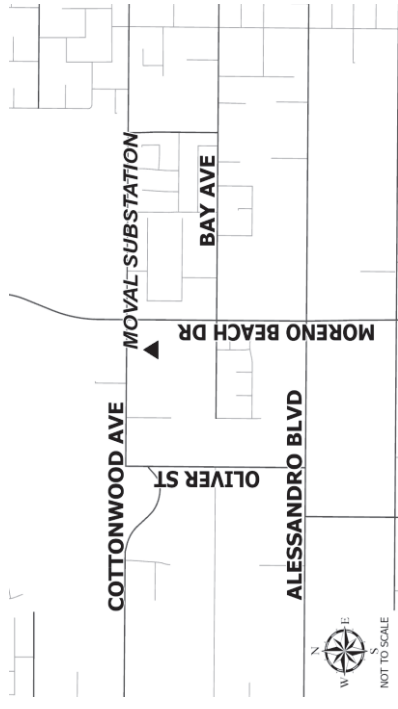
CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Moreno Beach Drive Line Extension from Cactus Avenue to John F. Kennedy Drive</p> <p>Department / Division: Public Works Department / Electric Utility Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input checked="" type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>					
<p>Project Location Map:</p> <p>The map shows a street grid with Moreno Beach Drive running north-south and John F. Kennedy Drive running east-west. A thick black line indicates the project location along Moreno Beach Drive between Cactus Avenue and Brodiaea Avenue. Other streets shown include Cactus Avenue, Brodiaea Avenue, Delphinium Avenue, and Oliver Street. A north arrow and 'NOT TO SCALE' are also present.</p>							
<p>Project Description: This project will install a new backbone along Moreno Beach Drive. It will include conduit and cable from Cactus Avenue to John F. Kennedy Drive along Moreno Beach Drive.</p> <p>Environmental: July 2022 to September 2022 Design: October 2022 to December 2022 Construction: January 2023 to June 2023</p> <p>Justification or Significance of Improvement: This will improve system reliability and provide a loop feed for the housing tracts and Rancho Belago apartments near the intersection of Moreno Beach Drive and John F. Kennedy Drive.</p> <p>Estimated Maintenance Costs: Ongoing maintenance costs are built into Moreno Valley Utilities rate structure as part of the cost to serve.</p>							
<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input checked="" type="checkbox"/> District 4</p>							
<p>Life-to-Date Expenditures Through FY 2019/2020: 0</p>							
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other			1,000 54,000 1,100,000				1,000 54,000 1,100,000
PROJECT TOTAL	0	0	1,155,000	0	0	0	1,155,000
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Electric-Restricted (6011) 805 XXXX-6011			1,155,000				1,155,000
REVENUE TOTAL	0	0	1,155,000	0	0	0	1,155,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Moreno Valley Fire Station #6 SCE to MVU Cutover</p>		<p>Project Status: <input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>		<p>Project Priority in CIP Category: <input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>			
<p>Department / Division: Public Works Department / Electric Utility Division</p>		<p>Project Location Map:</p>					
<p>Project Description: This project will install new conduit, cable, and electrical facilities within Eucalyptus Avenue. Moreno Valley Utility (MVU) will have a conduit stub upon its completion of the Eucalyptus Avenue Line Extension in order to transfer service from Southern California Edison (SCE) to MVU. Environmental: January 2022 Design: February 2022 to March 2022 Construction: April 2022 to June 2022</p>		<p>Justification or Significance of Improvement: SCE currently serves the Moreno Valley Fire Station #6 on Eucalyptus Avenue. MVU will have electrical infrastructure with its completion of the Eucalyptus Line Extension Project which enables providing electrical service to the fire station. A goal of MVU is to provide electrical service to City-owned facilities.</p>					
<p>Estimated Maintenance Costs: Ongoing maintenance costs are built into Moreno Valley Utilities rate structure as part of the cost to serve.</p>		<p>Council District(s): <input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>					
<p>Life-to-Date Expenditures Through FY 2019/2020: 0</p>		<p>FY 21/22 - FY 22/23 Budget</p>					
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design		1,000					1,000
Right of Way Construction		15,000					15,000
Other		125,000					125,000
PROJECT TOTAL	0	141,000	0	0	0	0	141,000
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Electric-Restricted (6011) 805 XXXX-6011		141,000					141,000
REVENUE TOTAL	0	141,000	0	0	0	0	141,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: MoVal Substation Relay Upgrades		Project Status: <input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold		Project Priority in CIP Category: <input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)			
Department / Division: Public Works Department / Electric Utility Division		Project Location Map: 					
Project Description: This project will install five new protection relays to replace the existing relays at MoVal Substation. Construction: July 2021 to June 2022		Council District(s): <input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4					
Justification or Significance of Improvement: A relay failure can cause a power outage to multiple circuits.							
Estimated Maintenance Costs: Ongoing maintenance costs are built into Moreno Valley Utilities rate structure as part of the cost to serve.							
Life-to-Date Expenditures Through FY 2019/2020: 0							
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other		10,000 70,000 80,000					10,000 70,000 80,000
PROJECT TOTAL	0		0	0	0	0	80,000
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Electric-Restricted (6011) 805 XXXX-6011		80,000					80,000
REVENUE TOTAL	0		0	0	0	0	80,000


CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Nason Street Loop Tie from Iris Avenue to Cactus Avenue

Department / Division: Public Works Department / Electric Utility Division

Project Status:
 New
 In Progress
 Deleted
 On Hold
 Completed

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:

 Council District(s):
 District 1 District 2 District 3 District 4

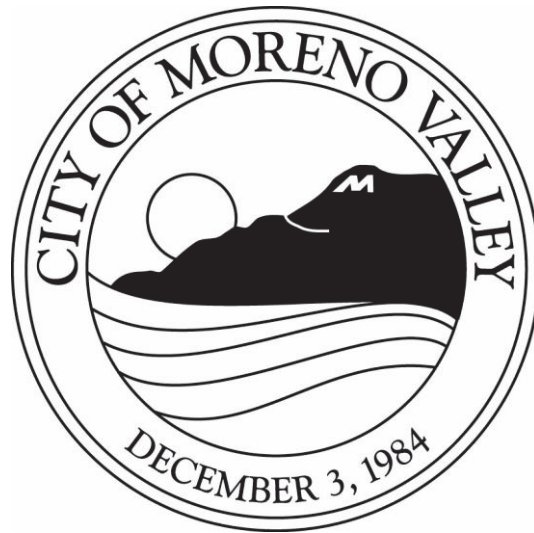
Project Description:
 This project will install 5,557 LF of new cable and tie-in conduits along Nason Street from Iris Avenue to Cactus Avenue.
 Environmental: July 2022 to September 2022
 Design: October 2022 to December 2022
 Construction: January 2023 to June 2023

Justification or Significance of Improvement:
 This will improve system reliability and provide a loop feed for the future development projects along Nason Street from Iris Avenue to Cactus Avenue.

Estimated Maintenance Costs:
 Ongoing maintenance costs are built into Moreno Valley Utilities rate structure as part of the cost to serve.

Life-to-Date Expenditures Through FY 2019/2020: 0		FY 21/22 - FY 22/23 Budget		FY 2025/2026 and Beyond			
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design			1,000				1,000
Right of Way			68,400				68,400
Construction			1,032,800				1,032,800
Other							
PROJECT TOTAL	0	0	1,102,200	0	0	0	1,102,200
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Electric-Restricted (6011)							
805 XXXX-6011			1,102,200				1,102,200
REVENUE TOTAL	0	0	1,102,200	0	0	0	1,102,200

CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond



LANDSCAPING

PROPOSED CAPITAL IMPROVEMENT PLAN

fiscal years 2021/22 & 2022/23

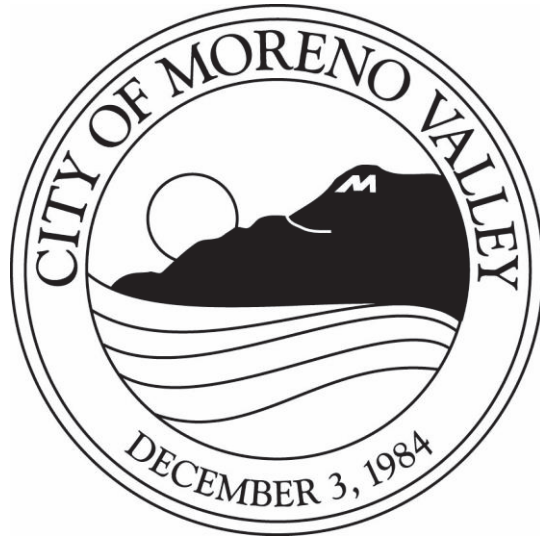
Attachment: Exhibit A - Proposed CIP FYs 2021/22 - 2022/23 (4417 : Capital Improvement Plan Fiscal Years 2021/22 - 2022/23)



CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond

<u>Project Name</u>	<u>Page #</u>
<i>Landscaping</i>	
<i>Funded Projects</i>	
None Listed	
<i>Partially Funded Projects</i>	
Landscape Maintenance Districts Capital Improvement Renovation	L-3
Landscape Maintenance Districts Capital Improvement Renovation (Supplemental Information 1)	L-4
Landscape Maintenance Districts Capital Improvement Renovation (Supplemental Information 2)	L-5

CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond



CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Landscape Maintenance Districts Capital Improvement Renovation		Project Status: <input type="checkbox"/> New <input checked="" type="checkbox"/> In Progress <input type="checkbox"/> Deleted <input type="checkbox"/> Completed <input type="checkbox"/> On Hold		Project Priority in CIP Category: <input type="checkbox"/> Essential (Start within 1 yr) <input checked="" type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input checked="" type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)			
Department / Division: Financial & Management Services / Special Districts		Project Location Map: Citywide					
Project Description: The project may include the design, construction, and construction management for the following capital improvements in the landscape maintenance districts. For additional information, please see the attached supplemental information sheet. Project was originally designated as 806 0001 in FY19/20.		Council District(s): <input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input checked="" type="checkbox"/> District 4					
Justification or Significance of Improvement: Landscape maintenance districts throughout the City require Capital Improvement Projects to reduce the cost of maintaining aging infrastructure, to improve efficiencies, and to provide the property owners with the services provided for through the use of a special financing district. The maximum amount of any annual installment shall be authorized through the collection of the rate, consistent with the governing documents of each special financing district, without exceeding the maximum rate.							
Estimated Maintenance Costs: Maintenance costs are funded through the charges annually levied on the property tax bills.							
Life-to-Date Expenditures Through FY 2019/2020: 241,860							
PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ.							0
Design							0
Right of Way							0
Construction							0
Other	1,338,639	1,915,000	1,035,000	1,000,000	1,100,000	1,650,000	6,700,000
PROJECT TOTAL	1,338,639	1,915,000	1,035,000	1,000,000	1,100,000	1,650,000	6,700,000
FUNDING SOURCE							
CFD 2014-01 (2050)							
806 SD Budget-2050			50,000	75,000	100,000	125,000	350,000
Zone E (5013)							
806 SD Budget-5013	27,952	51,000		40,000	90,000	440,000	621,000
LMD 2014-02 (5014)							
806 SD Budget-5014	789,992	600,000	425,000	300,000	300,000	450,000	2,075,000
Zone D (5111)							
806 SD Budget-5111	297,440	996,000	500,000	500,000	500,000	500,000	2,996,000
Zone M (5112)							
806 SD Budget-5112	223,255	268,000	60,000	60,000	60,000	60,000	508,000
Zone S (5114)							
806 SD Budget-5114				25,000	50,000	75,000	150,000
REVENUE TOTAL	1,338,639	1,915,000	1,035,000	1,000,000	1,100,000	1,650,000	6,700,000

CITY OF MORENO VALLEY
 Capital Improvement Plan - Project Details
 FYs 2021-2026 and Beyond

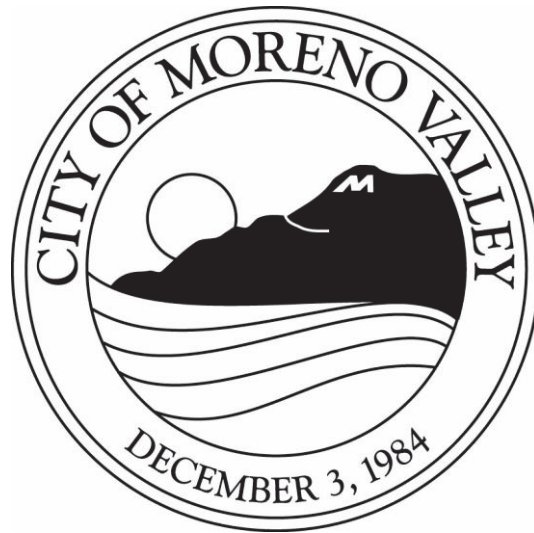
Landscape Maintenance Districts Capital Improvement Renovation (Supplemental Information 1)															
Projects	LMD 2014-02 Zone 01			LMD 2014-02 Zone 02			LMD 2014-02 Zone 03			LMD 2014-02 Zone 03A					
	FY 21/22	FY 22/23	FY 23/24	FY 24/25	FY 25/26	FY 21/22	FY 22/23	FY 23/24	FY 24/25	FY 25/26	FY 21/22	FY 22/23	FY 23/24	FY 24/25	FY 25/26
Alessandro/ Old 215 Median Renovations															
Fence Renovation					X										
Irrigation/Smart Controller Installations and Updates						X	X	X	X	X					
Median Renovations	X	X	X	X	X										
Parkway Renovations	X	X	X	X	X						X	X	X	X	X
Pump Upgrades			X												
Stamped concrete on Nason (southern most median)															
LMD 2014-02 Zone 05															
FY 21/22	FY 22/23	FY 23/24	FY 24/25	FY 25/26	FY 21/22	FY 22/23	FY 23/24	FY 24/25	FY 25/26	FY 21/22	FY 22/23	FY 23/24	FY 24/25	FY 25/26	
Alessandro/ Old 215 Median Renovations															
Fence Renovation															
Irrigation/Smart Controller Installations and Updates															
Median Renovations	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Parkway Renovations	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Pump Upgrades															
Stamped concrete on Nason (southern most median)			X												
LMD 2014-02 Zone 06															
FY 21/22	FY 22/23	FY 23/24	FY 24/25	FY 25/26	FY 21/22	FY 22/23	FY 23/24	FY 24/25	FY 25/26	FY 21/22	FY 22/23	FY 23/24	FY 24/25	FY 25/26	
Alessandro/ Old 215 Median Renovations															
Fence Renovation															
Irrigation/Smart Controller Installations and Updates															
Median Renovations	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Parkway Renovations	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Pump Upgrades															
Stamped concrete on Nason (southern most median)															
LMD 2014-02 Zone 07															
FY 21/22	FY 22/23	FY 23/24	FY 24/25	FY 25/26	FY 21/22	FY 22/23	FY 23/24	FY 24/25	FY 25/26	FY 21/22	FY 22/23	FY 23/24	FY 24/25	FY 25/26	
Alessandro/ Old 215 Median Renovations															
Fence Renovation															
Irrigation/Smart Controller Installations and Updates															
Median Renovations	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Parkway Renovations	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Pump Upgrades															
Stamped concrete on Nason (southern most median)															
LMD 2014-02 Zone 08															
FY 21/22	FY 22/23	FY 23/24	FY 24/25	FY 25/26	FY 21/22	FY 22/23	FY 23/24	FY 24/25	FY 25/26	FY 21/22	FY 22/23	FY 23/24	FY 24/25	FY 25/26	
Alessandro/ Old 215 Median Renovations															
Fence Renovation															
Irrigation/Smart Controller Installations and Updates															
Median Renovations	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Parkway Renovations	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Pump Upgrades															
Stamped concrete on Nason (southern most median)															
CSD Zone E-7															
FY 21/22	FY 22/23	FY 23/24	FY 24/25	FY 25/26	FY 21/22	FY 22/23	FY 23/24	FY 24/25	FY 25/26	FY 21/22	FY 22/23	FY 23/24	FY 24/25	FY 25/26	
Alessandro/ Old 215 Median Renovations															
Fence Renovation															
Irrigation/Smart Controller Installations and Updates					X	X	X	X	X	X	X	X	X	X	
Median Renovations															
Parkway Renovations	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Pump Upgrades															
Stamped concrete on Nason (southern most median)															
CSD Zone E-8															
FY 21/22	FY 22/23	FY 23/24	FY 24/25	FY 25/26	FY 21/22	FY 22/23	FY 23/24	FY 24/25	FY 25/26	FY 21/22	FY 22/23	FY 23/24	FY 24/25	FY 25/26	
Alessandro/ Old 215 Median Renovations															
Fence Renovation															
Irrigation/Smart Controller Installations and Updates															
Median Renovations															
Parkway Renovations	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Pump Upgrades															
Stamped concrete on Nason (southern most median)															

b

Landscape Maintenance Districts Capital Improvement Renovation (Supplemental Information 2)

Projects	CSD Zone M					CSD Zone S					CFD 2014-01				
	FY 21/22	FY 22/23	FY 23/24	FY 24/25	FY 25/26	FY 21/22	FY 22/23	FY 23/24	FY 24/25	FY 25/26	FY 21/22	FY 22/23	FY 23/24	FY 24/25	FY 25/26
Alessandro/ Old 215 Median Renovations	X														
Fence Renovation															
Irrigation/Smart Controller Installations and Updates	X	X	X	X	X						X	X	X	X	X
Median Renovations	X	X	X	X	X			X	X	X			X	X	X
Parkway Renovations													X	X	X
Pump Upgrades															
Stamped concrete on Nason (southern most median)															

CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond



Attachment: Exhibit A - Proposed CIP FYs 2021/22 - 2022/23 (4417 : Capital Improvement Plan Fiscal Years 2021/22 - 2022/23)



PARKS

PROPOSED
CAPITAL IMPROVEMENT PLAN

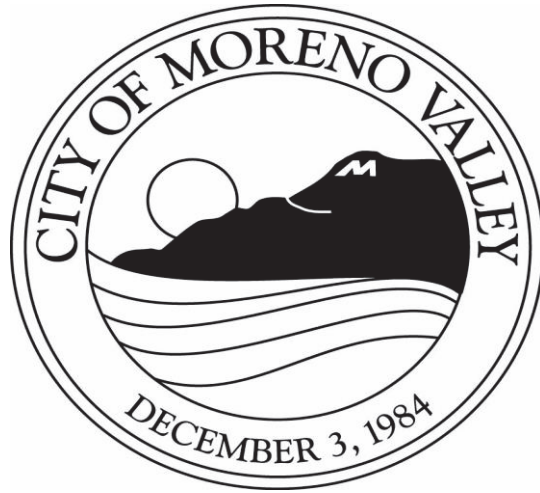
fiscal years 2021/22 & 2022/23



**CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond**

<u>Project Name</u>	<u>Page #</u>
<i>Parks</i>	
<i>Funded Projects</i>	
Cottonwood Golf Center Irrigation Improvements	P-3
Demonstration Garden	P-4
Drinking Fountain Replacements at Various Parks	P-5
LED Lighting Upgrades at Various Parks	P-6
Moreno Valley Community Park Picnic Shelter Replacement	P-7
Moreno Valley Community Park Soccer Field Improvements	P-8
Morrison Park Ball Field Lighting LED Retrofit	P-9
Pump Track at March Field Park	P-10
Rancho Verde Park	P-11
<i>Partially Funded Projects</i>	
Annual ADA Park Improvements	P-13
Moreno Valley Bark Park	P-14
Replacement Playground Equipment	P-15

CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond

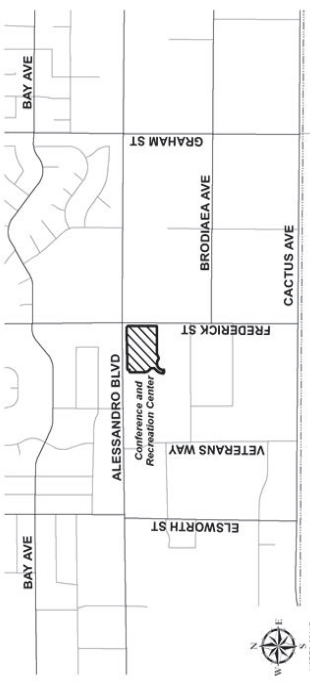


Attachment: Exhibit A - Proposed CIP FYs 2021/22 - 2022/23 (4417 : Capital Improvement Plan Fiscal Years 2021/22 - 2022/23)

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Cottonwood Golf Center Irrigation Improvements</p>		<p>Project Status: <input type="checkbox"/> New <input checked="" type="checkbox"/> In Progress <input type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>		<p>Project Priority in CIP Category: <input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>			
<p>Department / Division: Parks & Community Services Department / Parks Division</p>		<p>Project Location Map:</p>					
<p>Project Description: Replace the lumber constructed irrigation pump shack, the irrigation controllers, the drain line, and the main line. PCS led/managed project.</p> <p>Justification or Significance of Improvement: The pump shack has deteriorated over several decades and needs replacement to house the golf center's irrigation pump and electrical. About one-third of the broken drain line was replaced several years ago. The rest of the drain line has degraded to the point of needing replacement. Irrigation controllers are outdated and inefficient. New controllers with modern technology provide significantly better water efficiency. The main line is degrading, requiring constant repair and requires replacement.</p> <p>Construction Completed: FY 17/18 - Pump shack and drain line Construction Completed: FY 19/20 - Irrigation Controllers Construction: FY 2021/2022 - Main line</p> <p>Estimated Maintenance Costs: Annual park maintenance costs average approximately \$12,000 / acre based on budget information provided by the Parks Maintenance Division. Actual maintenance costs may vary depending on the size and amenities of the site. Maintenance will be funded from Zone A.</p>		<p>Council District(s): <input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>					
<p>Life-to-Date Expenditures Through FY 2019/2020: 17,510</p>		<p>FY 21/22 - FY 22/23 Budget</p>					
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design							
Right of Way Construction	262,490						
Other							
PROJECT TOTAL	262,490	0	0	0	0	0	0
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
PCS Cap Proj (2019) 807 0045-3016	262,490						
REVENUE TOTAL	262,490	0	0	0	0	0	0

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Demonstration Garden		Project Status: <input type="checkbox"/> New <input checked="" type="checkbox"/> In Progress <input type="checkbox"/> Completed		Project Priority in CIP Category: <input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)			
Department / Division: Parks & Community Services Department / Parks Division		Project Location Map: 					
Project Description: The project entails the construction of a fenced demonstration garden behind the Conference and Recreation Center. The garden will contain elements such as raised planter beds, tower/wall planters, vermiculture, composting, and an educational area. Capital Projects Division assistance will be needed to manage this Parks Division Project. Design: Completed Construction: February 2021 to August 2021 Justification or Significance of Improvement: The purpose of this project is to create demonstration garden for residents which will assist in teaching the public how to design their own water-efficient gardens and gardening techniques at home. Estimated Maintenance Costs: Demonstration Garden maintenance costs average approximately \$14,000 per acre per year based on budget information provided by the Parks Maintenance Division. Actual maintenance costs may vary depending on the size and amenities of the site. Maintenance will be funded by Zone A.		Council District(s): <input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4					
Life-to-Date Expenditures Through FY 2019/2020: 24,733		FY 21/22 - FY 22/23 Budget					
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design	2,734						
Right of Way Construction	691,979						
Other							
PROJECT TOTAL	694,713	0	0	0	0	0	0
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Other Grants (2300)							
807 0049-2300	202,952						
PCS Cap Proj (2905)							
807 0049-3015	491,761						
REVENUE TOTAL	694,713	0	0	0	0	0	0

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Drinking Fountain Replacements at Various Parks</p>		<p>Project Status: <input type="checkbox"/> New <input checked="" type="checkbox"/> In Progress <input type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>		<p>Project Priority in CIP Category: <input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>			
<p>Department / Division: Parks & Community Services Department / Parks Division</p>		<p>Project Location Map:</p>					
<p>Project Description: Replace drinking fountains at Celebration Park and Vista Lomas. PCS led/managed project. Construction Celebration Park: Completed Construction Vista Lomas Park: Completed Construction Rockridge, Patriot, and Shadow Mountain Parks FY21/22 Construction Towngate II and Cottonwood Staging Parks FY22/23</p> <p>Justification or Significance of Improvement: The existing drinking fountains at these parks have been damaged by vandalism over the years and replacement parts are difficult to find for these outdated units. The newer model is vandal-resistant.</p> <p>Estimated Maintenance Costs: Annual park maintenance costs average approximately \$12,000 / acre based on budget information provided by the Parks Maintenance Division. Actual maintenance costs may vary depending on the size and amenities of the site. Parks maintenance is typically funded by Zone A (CDF No. 1 for newer parks).</p>		<p>Council District(s): <input checked="" type="checkbox"/> District 1 <input checked="" type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>					
<p>Life-to-Date Expenditures Through FY 2019/2020: 25,489</p>		<p>FY 21/22 - FY 22/23 Budget</p>					
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design							
Right of Way Construction	26,510	30,000	22,000				52,000
Other							
PROJECT TOTAL	26,510	30,000	22,000	0	0	0	52,000
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
CFD #1 (5113)							
807 0052-5113	26,510	30,000	22,000				52,000
REVENUE TOTAL	26,510	30,000	22,000	0	0	0	52,000

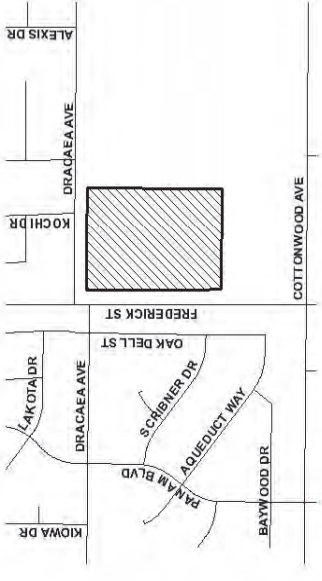
CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: LED Lighting Improvements at Various Parks</p> <p>Department / Division: Parks & Community Services Department / Parks Division</p>		<p>Project Status:</p> <p><input type="checkbox"/> New <input checked="" type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>		<p>Project Priority in CIP Category:</p> <p><input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>			
<p>Project Description: Upgrade current light fixtures at Celebration Park, Vista Lomas Park, and Hound Town Dog Park with LED lighting. PCS led/managed project.</p> <p>Construction: FY21/22 - Towngate II and Hound Town Dog Parks Construction: FY22/23 - Vista Lomas and Celebration Parks</p> <p>Justification or Significance of Improvement: Existing light fixtures are inefficient and require costly repairs. New fixtures are more efficient and have a longer lifespan. Hound Town Dog Park currently has no lighting. Adding lighting there would allow expanded hours of operation, beyond dusk.</p> <p>Estimated Maintenance Costs: Annual park maintenance costs average approximately \$12,000 / acre based on budget information provided by the Parks Maintenance Division. Actual maintenance costs may vary depending on the size and amenities of the site. Parks maintenance is typically funded by Zone A (CDF No. 1 for newer parks).</p>		<p>Project Location Map:</p>					
		<p>Council District(s):</p> <p><input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input checked="" type="checkbox"/> District 4</p>					
		<p>Life-to-Date Expenditures Through FY 2019/2020: 0</p>					
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other	120,000	50,000	50,000				100,000
PROJECT TOTAL	120,000	50,000	50,000	0	0	0	100,000
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
CFD #1 (5113) 807 0053-5113	120,000	50,000	50,000				100,000
REVENUE TOTAL	120,000	50,000	50,000	0	0	0	100,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Moreno Valley Community Park Picnic Shelter Replacement</p>		<p>Project Status: <input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>		<p>Project Priority in CIP Category: <input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>			
<p>Department / Division: Parks & Community Services Department / Parks Division</p>		<p>Project Location Map:</p>					
<p>Project Description: Replace three picnic shelters with new steel shelters at Moreno Valley Community Park. PCS led/managed project. Design: August 2021 Advertise / Award: September 2021 Construction: November 2021</p>		<p>Justification or Significance of Improvement: The park has three aged shelters that are in need of replacement. New shelters will enhance the appearance of the park and provide improved picnic areas for park visitors.</p>					
<p>Estimated Maintenance Costs: Annual park maintenance costs average approximately \$12,000 / acre based on budget information provided by the Parks Maintenance Division. Actual maintenance costs may vary depending on the size and amenities of the site. Parks maintenance is typically funded by Zone A (CDF No. 1 for newer parks).</p>							
<p>Life-to-Date Expenditures Through FY 2019/2020: 0</p>							
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other		175,000					175,000
PROJECT TOTAL	0	175,000	0	0	0	0	175,000
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
PCS Cap Proj (2905) 807 XXXX-3015		175,000					175,000
REVENUE TOTAL	0	175,000	0	0	0	0	175,000

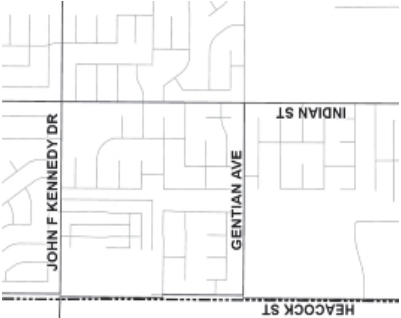
CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Moreno Valley Community Park Soccer Field Improvements	Project Status: <input type="checkbox"/> New <input checked="" type="checkbox"/> In Progress <input type="checkbox"/> Completed	Project Priority in CIP Category: <input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)	
Department / Division: Parks & Community Services Department / Parks Division	Project Location Map: 		
Project Description: Replace original synthetic turf at Moreno Valley Community Park and upgrade lighting to LED and add security cameras. The Technology Services Division will assist the Parks Division with camera installation. PCS led/managed project.	Council District(s): <input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4		
Justification or Significance of Improvement: Original synthetic turf was over 10 years old and past its useful life. Lighting is dim and requires constant maintenance, which can exceed the cost of replacement. Construction Completed: FY 17/18 - Synthetic turf replacement Construction Completed: FY 20/21 - LED lighting Construction: FY 21/22 - Security cameras			
Estimated Maintenance Costs: Annual park maintenance costs average approximately \$12,000 / acre based on budget information provided by the Parks Maintenance Division. Actual maintenance costs may vary depending on the size and amenities of the site. Parks maintenance is typically funded by Zone A (CDF No. 1 for newer parks).			
Life-to-Date Expenditures Through FY 2019/2020: 2,392,743			
PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget	FY 2025/2026 and Beyond
Prelim. Eng. / Environ. Design		New Request FY 2022/2023	FY 2024/2025
Right of Way Construction	235,587		
Other			
PROJECT TOTAL	235,587	0	0
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2022/2023	FY 2023/2024
PCS Cap Proj (3006)	235,587		
807 0047-3006			
REVENUE TOTAL	235,587	0	0

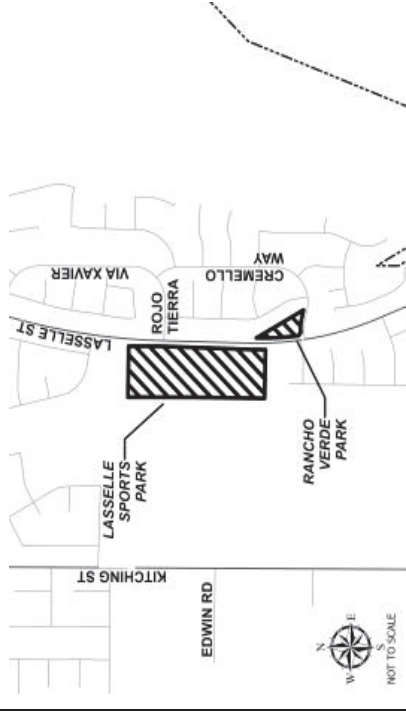
CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Morrison Park Ball Field Lighting LED Retrofit</p>		<p>Project Status: <input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>		<p>Project Priority in CIP Category: <input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>			
<p>Department / Division: Parks & Community Services Department / Parks Division</p>		<p>Project Location Map:</p>					
<p>Project Description: This project will retrofit ball field lighting with LED at Morrison Park. PCS lead/managed project. Advertise / Award: January 2022 Construction: March 2022</p> <p>Justification or Significance of Improvement: LED lighting will improve the quality of ball field lighting and reduce energy consumption.</p> <p>Estimated Maintenance Costs: Annual park maintenance costs average approximately \$12,000 / acre based on budget information provided by the Parks Maintenance Division. Actual maintenance costs may vary depending on the size and amenities of the site. Parks maintenance is typically funded by Zone A (CDF No. 1 for newer parks).</p>		<p>Council District(s): <input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>					
<p>Life-to-Date Expenditures Through FY 2019/2020: 0</p>		<p>FY 21/22 - FY 22/23 Budget</p>					
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other		700,000					700,000
PROJECT TOTAL	0	700,000	0	0	0	0	700,000
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
PCS Cap Proj (2905) 807 XXXX-3015		700,000					700,000
REVENUE TOTAL	0	700,000	0	0	0	0	700,000

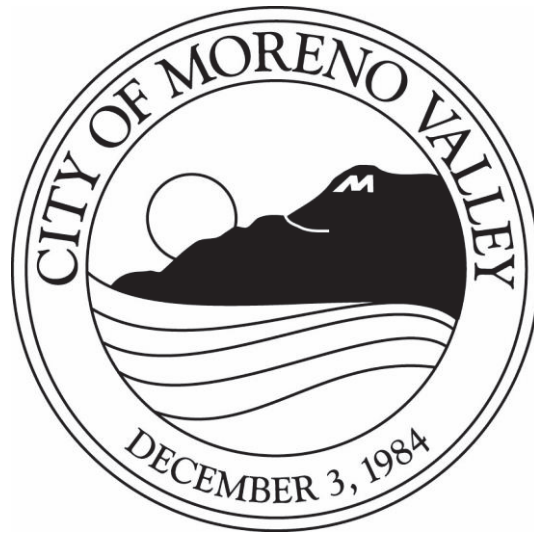
CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Pump Track at March Field Park	Project Status: <input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold	Project Priority in CIP Category: <input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)
Department / Division: Parks & Community Services Department / Parks Division	Project Location Map: 	
Project Description: A pump track, with an adaptive park feature for tots, at March Field Park will bring a new and unique recreation experience to Moreno Valley, and will be a destination recreational feature for the city. A pump track is a looped sequence of rollers and banked turns for bike riders, designed to maximize momentum, so that minimal pedaling is required. The March Field pump track will be designed and built for use by all ages and skill levels, and for regional/national competitions. Design: November 2021 Advertise / Award: May 2022 Construction: September 2022		
Justification or Significance of Improvement: A pump track at March Field will bring a new and unique recreation experience to Moreno Valley and will be a destination recreational feature for the City.		
Estimated Maintenance Costs: Annual park maintenance costs average \$12,000 / acre based on budget information provided by the Parks Maintenance Division. Actual maintenance costs may vary depending on the size and amenities of the site. Parks maintenance is typically funded by Zone A (CDF No. 1 for newer parks).		
Council District(s): <input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4		
Life-to-Date Expenditures Through FY 2019/2020: 0		
PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget
Prelim. Eng. / Environ. Design Right of Way Construction Other		New Request FY 2021/2022 10,000 40,000 1,200,000 1,250,000
		New Request FY 2022/2023 0
PROJECT TOTAL	0	0
FUNDING SOURCE	Budget FY 2020/2021	FY 2025/2026 and Beyond
PCS Cap Proj (2905) 807 XXXX-3015		FY 2024/2025 FY 2023/2024 FY 2024/2025 FY 2025/2026 and Beyond
		Total 10,000 40,000 1,200,000 1,250,000
REVENUE TOTAL	0	0

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Rancho Verde Park		Project Status: <input type="checkbox"/> New <input checked="" type="checkbox"/> In Progress <input type="checkbox"/> Completed		Project Priority in CIP Category: <input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)			
Department / Division: Parks & Community Services Department / Parks Division		Project Location Map: 					
Project Description: This project will assist with planning and permits regarding Rancho Verde Park, located at the eastern side of Lasselle Street and Cremello Way, as well as at Lasselle Sports Park. PCS led/managed project. Planning / Permits: July 2014 to December 2021 Construction: TBD based on permitting		Council District(s): <input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input checked="" type="checkbox"/> District 4					
Justification or Significance of Improvement: This park is within the Moreno Valley Ranch Specific Plan. The funding will assist with contract compliance costs.							
Estimated Maintenance Costs: Annual park maintenance costs average approximately \$12,000 / acre based on budget information provided by the Parks Maintenance Division. Actual maintenance costs may vary depending on the size and amenities of the site. Parks maintenance is typically funded by Zone A (CDF No. 1 for newer parks).							
Life-to-Date Expenditures Through FY 2019/2020: 17,836							
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design							
Right of Way Construction	83,301						
Other	82,317						
PROJECT TOTAL	165,618	0	0	0	0	0	0
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
PCS Cap Proj (2905)							
807 0031 50 57-3015	165,618						
REVENUE TOTAL	165,618	0	0	0	0	0	0

CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond

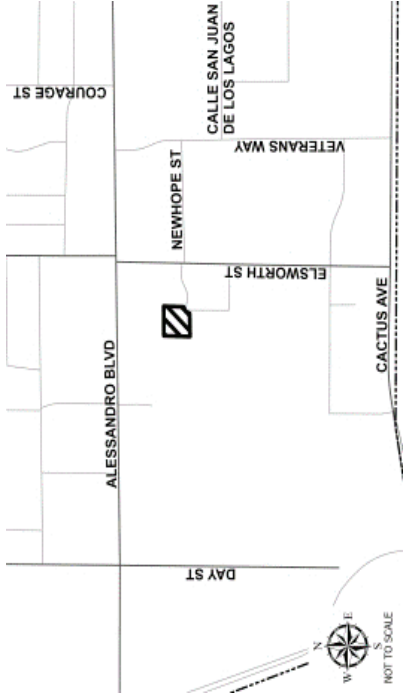


Attachment: Exhibit A - Proposed CIP FYs 2021/22 - 2022/23 (4417 : Capital Improvement Plan Fiscal Years 2021/22 - 2022/23)

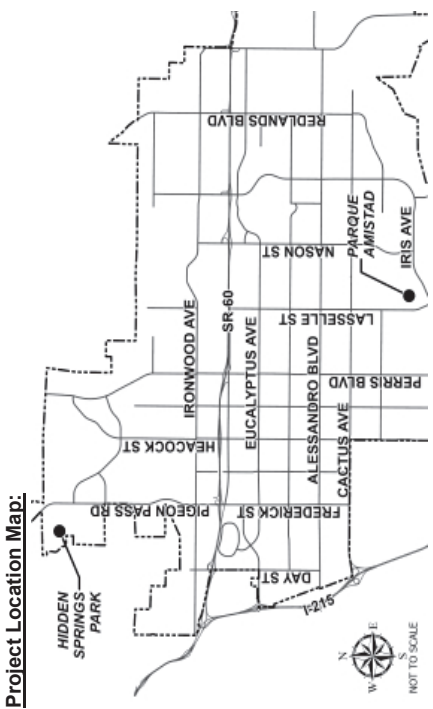
CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Annual ADA Park Improvements		Project Status: <input type="checkbox"/> New <input checked="" type="checkbox"/> In Progress <input type="checkbox"/> Completed		Project Priority in CIP Category: <input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)			
Department / Division: Parks & Community Services Department / Parks Division		Project Location Map: CITYWIDE					
Project Description: This project upgrades existing facilities (restrooms), park and parking lot ramps, and sidewalks throughout City parks to meet current ADA standards. The work will be consistent with the City's ADA Transition Plan. PCS led/managed project. Project Schedule: Ongoing							
Justification or Significance of Improvement: Cities are required by Federal and State Law to have an ADA Transition Plan, consisting of plans and schedules to upgrade facilities (restrooms), park/parking lot ramps, and sidewalks to ADA specifications. Upgrading these items will enhance usage for people with physical disabilities and other pedestrians.		Council District(s): <input checked="" type="checkbox"/> District 1 <input checked="" type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4					
Estimated Maintenance Costs: Annual park maintenance costs average approximately \$12,000 / acre based on budget information provided by the Parks Maintenance Division. Actual maintenance costs may vary depending on the size and amenities of the site. Parks maintenance is typically funded by Zone A (CDF No. 1 for newer parks).							
Life-to-Date Expenditures Through FY 2019/2020: 907,259							
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other	414,201	50,000	50,000	50,000	50,000	50,000	250,000
PROJECT TOTAL	414,201	50,000	50,000	50,000	50,000	50,000	250,000
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
PCS Cap Proj (2019) 807 0005 50 57-3016	414,201	50,000	50,000	50,000	50,000	50,000	250,000
REVENUE TOTAL	414,201	50,000	50,000	50,000	50,000	50,000	250,000

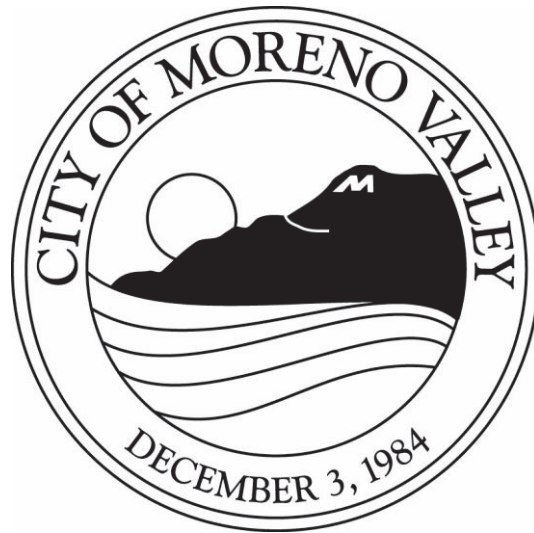
CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Moreno Valley Bark Park		Project Status: <input checked="" type="checkbox"/> New <input checked="" type="checkbox"/> In Progress <input type="checkbox"/> Deleted <input type="checkbox"/> Completed <input type="checkbox"/> On Hold	Project Priority in CIP Category: <input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)
Department / Division: Parks & Community Services Department / Parks Division		Project Location Map: 	
Project Description: This project will include the construction of a dog park on the vacant lot west of the City's Animal Shelter. PCS Design services retained for preparation of grant application submitted in March 2021. California State Department of Parks and Recreation's announcement of SPP Grant awards is expected in Summer / Fall 2021. Construction is contingent upon award of grant funding. Funding update contingent upon grant award.		Council District(s): <input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4	
Justification or Significance of Improvement: This project will add a dog park in the western area of the City. Currently Hound Town is the only dedicated dog park.			
Estimated Maintenance Costs: Annual park maintenance costs average \$12,000 / acre based on budget information provided by the Parks Maintenance Division. Actual maintenance costs may vary depending on the size and amenities of the site. Parks maintenance is typically funded by Zone A (CDF No. 1 for newer parks).			
Life-to-Date Expenditures Through FY 2019/2020: 0			
PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget	FY 2025/2026 and Beyond
Prelim. Eng. / Environ. Design Right of Way Construction Other	172,000	New Request FY 2021/2022 New Request FY 2022/2023 2,723,519	FY 2023/2024 FY 2024/2025 FY 2025/2026 and Beyond Total 2,723,519
PROJECT TOTAL	172,000	0	0
FUNDING SOURCE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget	FY 2025/2026 and Beyond
PCS Cap Proj (2905) 807 0054-3015 Other Grants (2300) 807 0054-2300	172,000	New Request FY 2021/2022 New Request FY 2022/2023 2,723,519	FY 2023/2024 FY 2024/2025 FY 2025/2026 and Beyond Total 2,723,519
REVENUE TOTAL	172,000	0	0

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Replacement Playground Equipment		Project Status: <input type="checkbox"/> New <input checked="" type="checkbox"/> In Progress <input type="checkbox"/> Completed		Project Priority in CIP Category: <input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)			
Department / Division: Parks & Community Services Department / Parks Division		Project Location Map: 					
Project Description: The purpose of this ongoing project is to replace aging playground equipment at parks throughout the City to comply with Consumer Product Safety Commission (CPSC) regulations. Additionally, adjacent accessibility repairs will be done to comply with current codes. PCS led/managed project. Construction completed: FY 18/19 - Westbluff Construction: FY 21/22 - Hidden Springs and Parque Amistad Construction: FY 22/23 - TBD		Council District(s): <input type="checkbox"/> District 1 <input checked="" type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input checked="" type="checkbox"/> District 4					
Justification or Significance of Improvement: The playground equipment at some park sites is aging and needs to be replaced.							
Estimated Maintenance Costs: Annual park maintenance costs average approximately \$12,000 / acre based on budget information provided by the Parks Maintenance Division. Actual maintenance costs may vary depending on the size and amenities of the site. Parks maintenance is typically funded by Zone A (CDF No. 1 for newer parks).							
Life-to-Date Expenditures Through FY 2019/2020: 1,033,864							
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design							
Right of Way Construction	134,437	200,000	75,000	75,000			350,000
Other							
PROJECT TOTAL	134,437	200,000	75,000	75,000	0	0	350,000
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
PCS Cap Proj (2019)							
807 0004 50 57-3016	134,437	200,000	75,000	75,000			350,000
REVENUE TOTAL	134,437	200,000	75,000	75,000	0	0	350,000

CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond



Attachment: Exhibit A - Proposed CIP FYs 2021/22 - 2022/23 (4417 : Capital Improvement Plan Fiscal Years 2021/22 - 2022/23)



TRAFFIC SIGNALS

PROPOSED
CAPITAL IMPROVEMENT PLAN

fiscal years 2021/22 & 2022/23

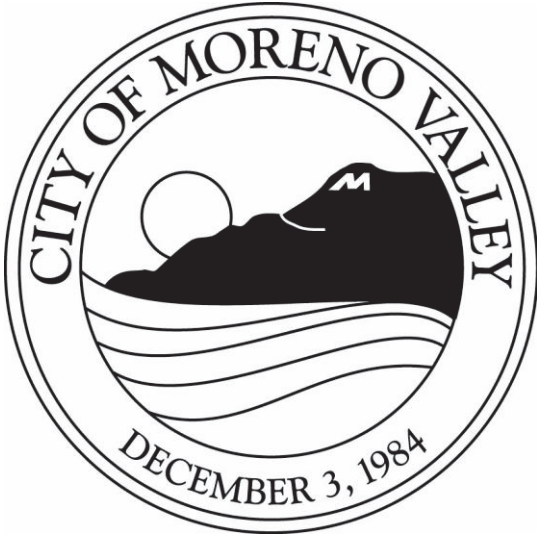
Attachment: Exhibit A - Proposed CIP FYs 2021/22 - 2022/23 (4417 : Capital Improvement Plan Fiscal Years 2021/22 - 2022/23)



**CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond**

<u>Project Name</u>	<u>Page #</u>
<i>Traffic Signals</i>	
<i>Funded Projects</i>	
Advanced Dilemma Zone Detection at Certain Intersections	T-3
Citywide Traffic Sign Retroreflectivity Inventory (2022)	T-4
Moreno Valley Ranch ITS	T-5
Pigeon Pass Road ITS	T-6
Road Safety Audit on Ironwood Avenue between Vista De Cerros Drive and Nason Street	T-7
Road Safety Audit on Kitching Street between Sunnymead Boulevard and Alessandro Boulevard	T-8
South Lasselle Street Safety Corridor	T-9
Upgrade Existing Marked Crosswalks on Arterials	T-10
<i>Partially Funded Projects</i>	
Traffic Signal Coordination Program	T-11
Traffic Signal Equipment Upgrades	T-12

CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond




CITY OF MORENO VALLEY
 Capital Improvement Plan - Project Details
 FYs 2021-2026 and Beyond

Project Title: Advanced Dilemma Zone Detection at Certain Intersections		Project Status: <input type="checkbox"/> New <input checked="" type="checkbox"/> In Progress <input type="checkbox"/> Completed		Project Priority in CIP Category: <input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)			
Department / Division: Public Works Department / Transportation Engineering Division		Project Location Map: CITYWIDE					
Project Description: The project will install Advanced Dilemma Zone Detection Systems at 65 existing signalized intersections citywide. These systems will enhance traffic safety. This project is fully funded by the Highway Safety Improvements Program (HSIP). Preliminary Engineering / Environmental: Completed Final Design: Completed Construction: January 2020 to October 2021							
Justification or Significance of Improvement: Advanced Dilemma Zone Detection System will reduce rear-end and right-angle collisions at project intersections.							
Estimated Maintenance Costs: The system will replace existing in-ground vehicle detection, which is prone to failure. Therefore, maintenance costs are expected to remain steady or decrease.							
Life-to-Date Expenditures Through FY 2019/2020: 265,489							
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design	120,209						
Right of Way Construction	3,456,200						
Other							
PROJECT TOTAL	3,576,409	0	0	0	0	0	0
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Cap Proj Grant (2301)	3,576,409						
808 0018-2301							
REVENUE TOTAL	3,576,409	0	0	0	0	0	0


CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Citywide Traffic Sign Retroreflectivity Inventory (2022)		Project Status: <input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Deleted <input type="checkbox"/> Completed <input type="checkbox"/> On Hold		Project Priority in CIP Category: <input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)			
Department / Division: Public Works Department / Transportation Engineering Division		Project Location Map: CITYWIDE					
Project Description: To comply with Federal requirements for traffic sign retroreflectivity, the Transportation Engineering Division will field measure the retroreflectivity of existing signs to determine conformance to new standards. Based on the results, a sign replacement program will be proposed. Complete Inventory: June 2022							
Justification or Significance of Improvement: This project will maintain conformance with national standards, improve the quality of the City's deployed traffic signs, and manage liability.							
Estimated Maintenance Costs: The project is expected to reduce sign maintenance cost by reducing the need to replace signs before the end of their useful life.							
Life-to-Date Expenditures Through FY 2019/2020: 0							
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other		100,000					100,000
PROJECT TOTAL	0	100,000	0	0	0	0	100,000
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Gas Tax (2000) 808 XXXX-2000		100,000					100,000
REVENUE TOTAL	0	100,000	0	0	0	0	100,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Moreno Valley Ranch ITS		Project Status: <input type="checkbox"/> New <input checked="" type="checkbox"/> In Progress <input type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold		Project Priority in CIP Category: <input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)			
Department / Division: Public Works Department / Transportation Engineering Division		Project Location Map: 					
Project Description: The project will retrofit eleven (11) signalized intersections with Intelligent Transportation Systems (ITS) equipment, including new fiber optic cable, closed circuit television (CCTV) cameras and new controller cabinets, to allow for remote monitoring and control from the City's Transportation Management Center. Preliminary Engineering / Environmental: Completed Design: Completed Construction: January 2021 to September 2021		Council District(s): <input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4					
Justification or Significance of Improvement: This project will replace obsolete traffic control equipment and allow for better monitoring and control of traffic.							
Estimated Maintenance Costs: The budget is largely being used to replace outdated traffic control equipment and therefore should reduce ongoing maintenance costs. Maintenance of traffic control equipment is funded by the operating budget. Maintenance cost of fiber optic communication media and equipment is expected to cost \$4,000 per mile per annum. The cost to maintain CCTV cameras is projected to be \$500 per camera per annum.							
Life-to-Date Expenditures Through FY 2019/2020: 57,097							
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design	54,210						
Right of Way Construction	596,691						
Other							
PROJECT TOTAL	650,901	0	0	0	0	0	0
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
DIF Traffic Signals (2902)	650,901						
808 0025-3302							
REVENUE TOTAL	650,901	0	0	0	0	0	0

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Pigeon Pass Road ITS		Project Status: <input type="checkbox"/> New <input checked="" type="checkbox"/> In Progress <input type="checkbox"/> Completed	Project Priority in CIP Category: <input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)
Department / Division: Public Works Department / Transportation Engineering Division		<input type="checkbox"/> Deleted <input type="checkbox"/> On Hold	
Project Description: The project will retrofit five signalized intersections with Intelligent Transportation Systems (ITS) equipment, including new fiber optic cable, closed circuit television (CCTV) cameras, and new controller cabinets, to allow for remote monitoring and control from the City's Transportation Management Center. PE/ Environmental: Completed Final Design: Completed Construction: January 2021 to September 2021	Project Location Map: 		
Justification or Significance of Improvement: The project will replace obsolete traffic control equipment and allow for better monitoring and control of traffic, including special events at the proposed Canyon Springs High School stadium.	Council District(s): <input type="checkbox"/> District 1 <input checked="" type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4		
Estimated Maintenance Costs: The budget is largely being used to replace outdated traffic control equipment and therefore should reduce ongoing maintenance costs. Maintenance of traffic control equipment is funded by the operating budget. Maintenance cost of fiber optic communication media and equipment is expected to cost \$4,000 per mile per annum. The cost to maintain CCTV cameras is projected to be \$500 per camera per annum.			
Life-to-Date Expenditures Through FY 2019/2020: 14,359			
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023
Prelim. Eng. / Environ. Design	30,000		
Right of Way Construction	313,640		
Other			
PROJECT TOTAL	343,640	0	0
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023
DIF Traffic Signals (2902)	343,640		
808 0030-3302			
REVENUE TOTAL	343,640	0	0
		FY 2023/2024	FY 2024/2025
		0	0
		FY 2025/2026 and Beyond	FY 2025/2026 and Beyond
		0	0
		Total	Total
		0	0

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Road Safety Audit on Ironwood Avenue between Vista De Cerros Drive and Nason Street</p> <p>Department / Division: Public Works Department / Transportation Engineering Division</p>	<p>Project Status:</p> <p><input type="checkbox"/> New <input checked="" type="checkbox"/> In Progress <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold <input type="checkbox"/> Completed</p>	<p>Project Priority in CIP Category:</p> <p><input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>					
<p>Project Location Map:</p>							
<p>Project Description: This project is studying the segment of Ironwood Avenue between Vista De Cerros Drive and Nason Street for safety improvements, and will fund installation of qualifying improvements. This project is fully funded by the Highway Safety Improvement Program (HSIP) Cycle 7.</p> <p>Preliminary Engineering / Environmental: Completed Final Design: Completed Construction: November 2021 to April 2022</p> <p>Justification or Significance of Improvement: The project will enhance safety of the Ironwood Avenue corridor.</p> <p>Estimated Maintenance Costs: The cost to maintain installed new signing and striping will be absorbed by the City's signing and striping maintenance budget.</p>							
<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input checked="" type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>							
<p>Life-to-Date Expenditures Through FY 2019/2020: 70,021</p>							
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design	691						
Right of Way Construction	294,285						
Other							
PROJECT TOTAL	294,976	0	0	0	0	0	0
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
General Fund (1010)							
808 0019-1010	691						
Cap Proj Grants (2301)							
808 0019-2301	294,285						
REVENUE TOTAL	294,976	0	0	0	0	0	0

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Road Safety Audit on Kitching Street between Sunnymead Boulevard and Alessandro Boulevard</p> <p>Department / Division: Public Works Department / Transportation Engineering Division</p>	<p>Project Status:</p> <p><input type="checkbox"/> New <input checked="" type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>
<p>Project Description: This project is studying the segment of Kitching Street from Sunnymead Boulevard to Alessandro Boulevard for safety improvements, and will fund installation of qualifying improvements. This project is fully funded by the Highway Safety Improvement Program (HSIP) Cycle 7.</p> <p>Preliminary Engineering / Environmental: Completed Final Design: July 2019 to March 2021 Construction: November 2021 to April 2022</p> <p>Justification or Significance of Improvement: The project will enhance safety of the Kitching Street corridor.</p> <p>Estimated Maintenance Costs: The cost to maintain installed new signing and striping will be absorbed by the City's signing and striping maintenance budget.</p>		
<p>Project Location Map:</p>		
<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>		

PROJECT PHASE	Budget FY 2020/2021	Life-to-Date Expenditures Through FY 2019/2020: 21,963			
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond
Prelim. Eng. / Environ. Design	3,035				
Right of Way Construction	115,000				
Other					
PROJECT TOTAL	118,035	0	0	0	0
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond
Cap Proj Grants (2301)	118,035				
808 0020-2301					
REVENUE TOTAL	118,035	0	0	0	0


CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: South Lasselle Street Safety Corridor

Department / Division: Public Works Department / Capital Projects Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:


Council District(s):
 District 1
 District 2
 District 3
 District 4

		FY 21/22 - FY 22/23 Budget	
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023
Prelim. Eng. / Environ. Design			
Right of Way Construction	429,303		
Other			
PROJECT TOTAL	429,303	0	0
		FY 2023/2024	FY 2024/2025
		FY 2025/2026 and Beyond	Total
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024	FY 2024/2025
Cap Proj Grants (2301)	429,303		
808 0026-2301			
REVENUE TOTAL	429,303	0	0

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Upgrade Existing Marked Crosswalks on Arterials</p>		<p>Project Status: <input type="checkbox"/> New <input checked="" type="checkbox"/> In Progress <input type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>		<p>Project Priority in CIP Category: <input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>	
<p>Department / Division: Public Works Department / Transportation Engineering Division</p>		<p>Project Location Map:</p>			
<p>Project Description: The City has received Highway Safety Improvement Program (HSIP) Cycle 8 funding to install high visibility crosswalk treatments at: 1. Sunnymead Ranch Parkway / Old Country Road 2. Indian Street / Manzanita Avenue 3. Eucalyptus Avenue / Sunnymeads Drive 4. Eucalyptus Avenue / Running Deer Road 5. Cottonwood Avenue / Jade Way 6. Cactus Avenue / Philo Street 7. John F. Kennedy Drive / Pepper Court PE / Environmental: Completed Final Design: Completed Construction: January 2021 to July 2021</p>		<p>Justification of Significance of Improvement: The project will improve pedestrian safety.</p> <p>Estimated Maintenance Costs: The cost to maintain the high-visibility treatments will be absorbed by the City's signing and striping maintenance budget.</p> <p>Life-to-Date Expenditures Through FY 2019/2020: 32,068</p>			
<p>PROJECT PHASE</p>		<p>Budget FY 2020/2021</p>		<p>FY 21/22 - FY 22/23 Budget</p>	
<p>Prelim. Eng. / Environ. Design Right of Way Construction Other</p>		<p>174,526 205,000 379,526</p>		<p>New Request FY 2021/2022 New Request FY 2022/2023 New Request FY 2023/2024 New Request FY 2024/2025 New Request FY 2025/2026 and Beyond Total</p>	
<p>FUNDING SOURCE Cap Proj Grants (2301) 808 0028-2301</p>		<p>Budget FY 2020/2021 379,526</p>		<p>FY 2023/2024 FY 2024/2025 FY 2025/2026 and Beyond Total</p>	
<p>REVENUE TOTAL</p>		<p>379,526</p>		<p>0 0 0 0 0 0</p>	

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Traffic Signal Coordination Program		Project Status: <input type="checkbox"/> New <input checked="" type="checkbox"/> In Progress <input type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold		Project Priority in CIP Category: <input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)			
Department / Division: Public Works Department / Transportation Engineering Division		Project Location Map: CITYWIDE					
Project Description: City staff will update existing traffic signal coordination plans to support deployment of new traffic signal control equipment. Eight arterials are currently synchronized and would be updated as necessary: Frederick Street, Heacock Street, Perris Boulevard, Lasselle Street, Box Springs Road / Ironwood Avenue, Sunnymead Boulevard, Alessandrio Boulevard, and Cactus Avenue. Currently, 58 signals are operating in coordination. Schedule: Ongoing as dictated by traffic pattern changes. Justification or Significance of Improvement: This project will optimize the performance of Moreno Valley's most heavily traveled arterials. This project pays for staff time, therefore, no additional maintenance cost. Estimated Maintenance Costs: Traffic signal maintenance is funded by the operating budget.		Council District(s): <input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4					
Life-to-Date Expenditures Through FY 2019/2020: 333,657							
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other	117,684	20,000	20,000	30,000	30,000	30,000	130,000
PROJECT TOTAL	117,684	20,000	20,000	30,000	30,000	30,000	130,000
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Air Quality Mgmt (2005) 808 0004 70 76-2005	117,684	20,000	20,000	30,000	30,000	30,000	130,000
REVENUE TOTAL	117,684	20,000	20,000	30,000	30,000	30,000	130,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Traffic Signal Equipment Upgrades		Project Status: <input type="checkbox"/> New <input checked="" type="checkbox"/> In Progress <input type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold		Project Priority in CIP Category: <input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)			
Department / Division: Public Works Department / Transportation Engineering Division		CITYWIDE					
Project Description: The Transportation Engineering Division will undertake traffic signal and traffic control equipment upgrades to improve safety and operations. Planned improvements include accessible pedestrian signal equipment, replacement of damaged traffic signal wiring, upgrade of older traffic signal cabinets/equipment, installation of light emitting diode (LED) safety lighting at locations not existing or programmed, and installation of a new Advanced Traffic Management System (ATMS) at the Traffic Management Center. Schedule: Ongoing							
Justification or Significance of Improvement: The Transportation Engineering Division routinely upgrades traffic signal equipment to maintain compliance with Federal and State Standards, to respond to requests from constituents, and ensure proper functionality of the traffic signal system.							
Estimated Maintenance Costs: The budget is largely being used to replace outdated traffic control equipment and therefore should reduce ongoing maintenance costs. Maintenance of traffic control equipment is funded by the operating budget.							
Life-to-Date Expenditures Through FY 2019/2020: 428,959							
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design							
Right of Way Construction	164,067	280,000	80,000	80,000	80,000	80,000	600,000
Other							
PROJECT TOTAL	164,067	280,000	80,000	80,000	80,000	80,000	600,000
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Gas Tax (2000)							
808 0013 70 76-2000 Measure A (2001)	164,067	200,000	80,000	80,000	80,000	80,000	200,000
808 0013 70 76-2001		80,000					400,000
REVENUE TOTAL	164,067	280,000	80,000	80,000	80,000	80,000	600,000

UNDERGROUND UTILITIES

PROPOSED
CAPITAL IMPROVEMENT PLAN

fiscal years 2021/22 & 2022/23

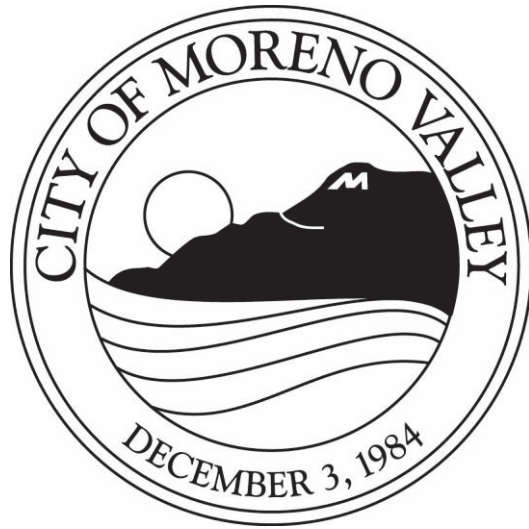


CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond

<u>Project Name</u>	<u>Page #</u>
<i>Underground Utilities</i>	
<i>Funded Projects</i>	
Citywide Fiber Optic Communications Expansion	U-3
<i>Partially Funded Projects</i>	
None Listed	

Attachment: Exhibit A - Proposed CIP FYs 2021/22 - 2022/23 (4417 : Capital Improvement Plan Fiscal Years 2021/22 - 2022/23)

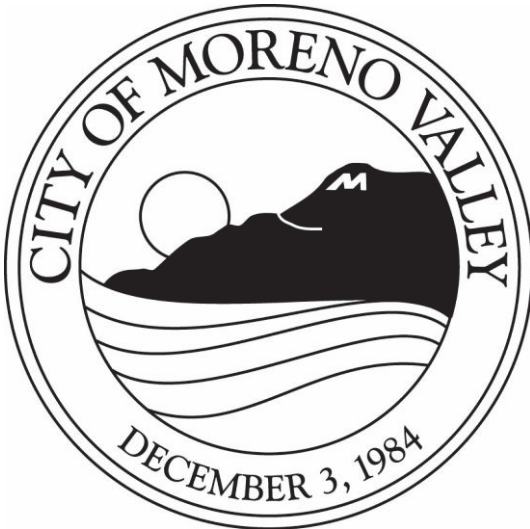
CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond



CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Citywide Fiber Optic Communications Expansion</p> <p>Department / Division: City Manager's Office / Technology Services Division</p>	<p>Project Status:</p> <p><input type="checkbox"/> New <input type="checkbox"/> Deleted</p> <p><input checked="" type="checkbox"/> In Progress <input type="checkbox"/> On Hold</p> <p><input type="checkbox"/> Completed</p>	<p>Project Priority in CIP Category:</p> <p><input checked="" type="checkbox"/> Essential (Start within 1 yr)</p> <p><input type="checkbox"/> Necessary (Start within 1 to 3 yrs)</p> <p><input type="checkbox"/> Desirable (Start within 3 to 5 yrs)</p> <p><input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>
<p>Project Location Map:</p> <p align="center">CITYWIDE</p>		
<p>Project Description:</p> <p>Funding for this project will be used to extend fiber optic communications Citywide, allowing high speed cost-effective network connectivity between City Hall and remote City locations. This project will provide a loop design in the fiber that is necessary for redundancy and reliable service. Use of the new fiber backbone between City Hall to the Corporate Yard and MVU Substation facilitated additional fiber communications to other City facilities, including use for traffic signal controls, traffic cameras, public safety, video surveillance, SCADA systems, and irrigation control systems.</p> <p>Construction completed: City Hall to Corporate Yard, Moreno Beach Substation, Kitching Substation Construction: July 2019 to June 2023</p> <p>Justification or Significance of Improvement:</p> <p>The MVU Electric Utility is an essential services location that should have gigabit communications, the capacity allowed by fiber optic cable. Use of the City's own fiber optic communications will save the City money by not having to lease expensive gigabit circuits from the local phone company.</p> <p>Estimated Maintenance Costs:</p> <p>Annual operating cost is zero. This underground facility provides monthly cost savings of \$1,700.00. Additionally, as fiber circuits are activated, cost savings increase annually.</p>		
<p>Council District(s):</p> <p><input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>		
<p>Life-to-Date Expenditures Through FY 2019/2020: 147,763</p>		
	<p>Budget FY 2020/2021</p>	<p>New Request FY 2021/2022</p>
<p>PROJECT PHASE</p> <p>Prelim. Eng. / Environ. Design Right of Way Construction Other</p>	<p>298,355</p>	<p>0</p>
<p>PROJECT TOTAL</p>		
<p>FUNDING SOURCE</p> <p>Tech Svcs Asset (7220) 809 0001 30 39-7220</p>	<p>298,355</p>	<p>0</p>
<p>REVENUE TOTAL</p>		
<p>FY 2021/2022</p>	<p>New Request FY 2022/2023</p>	<p>FY 2023/2024</p>
<p>0</p>	<p>0</p>	<p>0</p>
<p>FY 2025/2026 and Beyond</p>		
<p>0</p>	<p>FY 2024/2025</p>	<p>FY 2025/2026 and Beyond</p>
<p>0</p>	<p>0</p>	<p>0</p>
<p>Total</p>		
<p>0</p>	<p>0</p>	<p>0</p>

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond



Attachment: Exhibit A - Proposed CIP FYs 2021/22 - 2022/23 (4417 : Capital Improvement Plan Fiscal Years 2021/22 - 2022/23)



OTHER

Citywide
Camera
System
In use for
Your Safety

PROPOSED
CAPITAL IMPROVEMENT PLAN

fiscal years 2021/22 & 2022/23

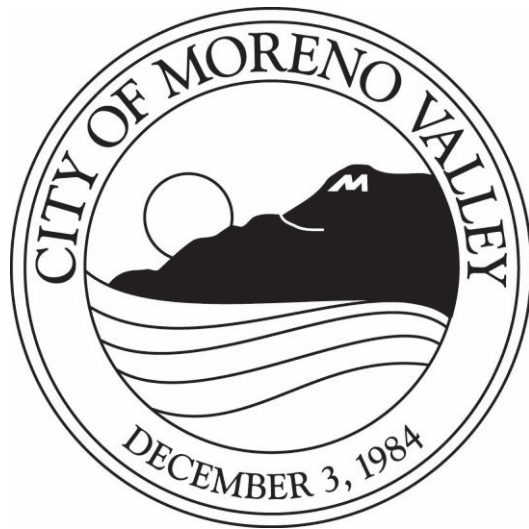


CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond

<u>Project Name</u>	<u>Page #</u>
<i>Other</i>	
<i>Funded Projects</i>	
Citywide Camera Surveillance System	O-3
<i>Partially Funded Projects</i>	
None Listed	

Attachment: Exhibit A - Proposed CIP FYs 2021/22 - 2022/23 (4417 : Capital Improvement Plan Fiscal Years 2021/22 - 2022/23)

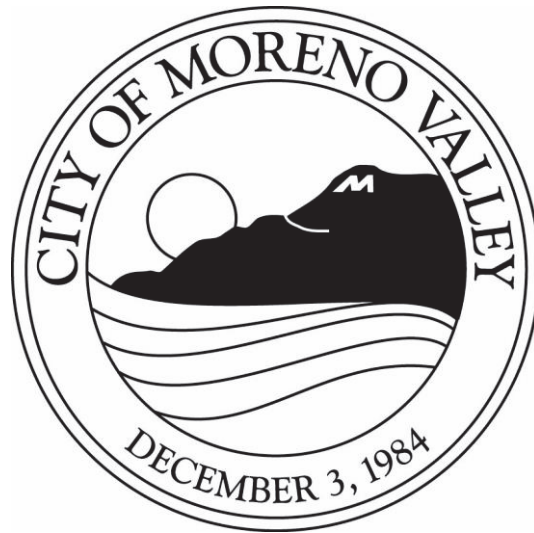
CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond



CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Citywide Camera Surveillance System		Project Status: <input type="checkbox"/> New <input checked="" type="checkbox"/> In Progress <input type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold		Project Priority in CIP Category: <input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)			
Department / Division: City Manager's Office / Technology Services Division		Project Location Map: CITYWIDE					
Project Description: The initial Citywide Camera System (CCS), which comprised of 216 cameras at approximately 67 intersections or park locations throughout the City, has grown to almost 540 cameras and is considered an invaluable tool by several City departments. The CCS will be enhanced with additional cameras in response to requests from departments. Planned projects include: The Technology Services Division is replacing outdated cameras at City Hall, the Animal Shelter, and the Conference and Recreation Center. The Civic Center Amphitheater and parking lot will receive 20 cameras. Construction completed: Corporate Yard, PSB, 7 Fire Stations, Moreno Beach Substation, City Hall Solar Carports. Construction: July 2019 to June 2023		Estimated Maintenance Costs: A third party is contracted to provide maintenance to the system; the cost for the maintenance is approximately \$185,000 per year. This expansion is expected to increase these costs in future years by approximately \$25,000 per year.					
Justification or Significance of Improvement: The Moreno Valley Police Department has identified a CCS as a way to enhance public safety without adding police officers. The CCS will augment the response capabilities of the on-duty patrol officers and aid law enforcement in their efforts to prevent and combat crime in the community. Other departments also use the CCS for operational responsibilities because it achieves results faster and less expensively than traditional methods.		Council District(s): <input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4					
Life-to-Date Expenditures Through FY 2019/2020: 2,204,174							
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other	36,804						
PROJECT TOTAL	36,804	0	0	0	0	0	0
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Tech Svcs Asset (7220) 810 0001 30 39-7220	36,804						
REVENUE TOTAL	36,804	0	0	0	0	0	0

CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond



APPENDICES

PROPOSED
CAPITAL IMPROVEMENT PLAN
fiscal years 2021/22 & 2022/23

Attachment: Exhibit A - Proposed CIP FYs 2021/22 - 2022/23 (4417 : Capital Improvement Plan Fiscal Years 2021/22 - 2022/23)



FYs 2021/22 & 2022/23 PROJECTS

L I S T E D B Y C A T E G O R Y

PROPOSED
CAPITAL IMPROVEMENT PLAN

fiscal years 2021/22 & 2022/23



Project No.	Fund	Project Description	Budget FY 2020-2021	New Request FY 2021-2022	New Request FY 2022-2023	Plan FY 2023-2024	Plan FY 2024-2025	Plan FY 2025-2026 and Beyond	Total
Street Improvements Fully Funded									
801 0087 2000A	2000A	Citywide Pavement Rehabilitation Program FY20/21	3,292,736						-
801 0076 2800	2800	Citywide Pavement Rehabilitation Program FY22/23	-	3,600,000					3,600,000
801 0076 3301	3301	Heacock St Pedestrian and Bicycle Enhancements/ Gregory Lane	520,000		3,600,000				3,600,000
801 0077 2301	2301	Juan Bautista de Anza Multi-Use Trail/El Potosero Park - ATP 3	54,531						-
801 0077 3015	3015	Juan Bautista de Anza Multi-Use Trail/El Potosero Park to Lake Perris State Park - ATP 3	2,571,357						-
801 0073 2201	2201	Juan Bautista de Anza Multi-Use Trail/El Potosero Park - ATP 2	350,000						-
801 0073 3004	3004	Juan Bautista de Anza Multi-Use Trail/El Potosero Park - ATP 2	1,136,626						-
801 0073 3016	3016	Juan Bautista de Anza Multi-Use Trail/El Potosero Park - ATP 2	8,673	100,000					100,000
801 0086 2301	2301	Juan Bautista de Anza Multi-Use Trail/El Potosero Park - ATP 2	5,553						-
801 0086 2312	2312	Juan Bautista de Anza Multi-Use Trail/El Potosero Park - ATP 4	8,373,419						-
801 0088 3008	3008	Pavement Rehabilitation for Various Streets (CDBG FY 20/21)	1,453,156						-
801 0021 70 77 2300	2300	SR-60/ Moreno Beach IC Phase 2	119,502						-
801 0021 70 77 2301	2301	SR-60/ Moreno Beach IC Phase 2	1,875,000						-
801 0021 70 77 3002	3002	SR-60/ Moreno Beach IC Phase 2	16,800,000						-
801 0021 70 77 3003	3003	SR-60/ Moreno Beach IC Phase 2	2,560,110						-
801 0021 70 77 3311	3311	SR-60/ Moreno Beach IC Phase 2	7,226,624						-
			925,090						-
		Subtotal Street Improvements Fully Funded	47,260,986	3,700,000	3,600,000	-	-	-	7,300,000
Street Improvements Partially Funded									
801 0008 70 77 2000	2000	Annual ADA Compliant Access Upgrades	764,600				200,000		800,000
801 0017 70 78 2001	2001	Annual Pavement Maintenance - Crack Seal	54,238	60,000			60,000		300,000
801 0065 2000	2000	Citywide Concrete Repair Program	-	100,000			60,000		300,000
801 0010 70 77 3003	3003	Citywide Pavement Rehabilitation Program FY23/24 and Beyond	-				3,600,000		10,800,000
801 0010 70 77 2000	2000	Easement Acquisition for Street Purposes	-	25,000			25,000		125,000
801 0083 2000	2000	Heacock Street South Extension	893,905						8,450,000
801 0015 70 76 2000	2000	Pavement Management Program (PMP)	-	50,000					50,000
801 0064 1010	1010	Perris Boulevard/ 330 Ft North of Bay Avenue to 660 Ft North of Bay Avenue	200,000				50,000		250,000
801 0064 3003	3003	Residential Traffic Mgmt Prgrm	5,187						50,000
801 0052 70 77 3311	3311	SR-60/ Redlands Boulevard Interchange	3,500,000						58,465,000
801 0052 70 77 UNF	UNF	SR-60/ World Logistics Center Parkway Interchange	503,300						76,000,000
		Subtotal Street Improvements Partially Funded	5,921,520	535,000	585,000	23,000,000	3,935,000	3,935,000	147,200,000
		Total Street Improvements	53,182,006	4,235,000	4,185,000	26,935,000	3,935,000	3,935,000	179,190,000
Bridges Fully Funded									
802 0003 70 77 3008	3008	SR-60/ Nason St Overcrossing Bridge	4,565						-
802 0003 70 77 3311	3311	SR-60/ Nason St Overcrossing Bridge	30,000						-
		Subtotal Bridges Partially Funded	34,565	-	-	-	-	-	-
Bridges Partially Funded									
802 0002 70 77 2000	2000	Bridge Annual Inspection Program	30,477				10,000		50,000
802 0006 2000	2000	Bridge Preventative Maintenance Program - Implementation Phase	135,256				698,000		698,000
802 0006 2301	2301	Bridge Preventative Maintenance Program - Implementation Phase	-				6,424,558		6,424,558
802 0004 3301	3301	Indian St/ Cardinal Avenue Bridge (Over lateral A)	843,280				5,500,000		5,500,000
		Subtotal Bridges Partially Funded	1,009,013	10,000	10,000	12,632,558	10,000	10,000	12,672,558
		Total Bridges	1,043,578	10,000	10,000	12,632,558	10,000	10,000	12,672,558
Buildings Fully Funded									
803 0042 3000	3000	Corporate Yard Building/ Fleet Shop Remodel	485,431						-
803 0043 3000	3000	Corporate Yard Master Plan Improvements	189,600	25,000					25,000
803 0044 3000	3000	Electronic Markers Sign	480,000						-
803 0044 3016	3016	Electronic Markers Sign	32,574						-
803 0000 3000	3000	Fire Alarm System Replacement	-	808,705					808,705
803 0000 3000	3000	Grand Valley Ballroom Patio Lighting	-	300,000					200,000
803 0000 3000	3000	Main Library Renovation (Design)	-	250,000					250,000
803 0000 3000	3000	Public Safety Building HVAC Replacement	-	1,500,000					1,500,000
803 0000 3000	3000	Roof Rehabilitation	-	141,281					141,281
803 0031 3016	3016	Roof Rehabilitation	16,668						533,719
803 0031 5113	5113	Towngate Community Center Renovation	60,000						-
		Subtotal Buildings Fully Funded	1,264,673	3,458,705	808,705	-	-	-	4,267,410
Buildings Partially Funded									
803 0050 3016	3016	Park Restroom Renovations at Various Sites	140,925	200,000			30,000		320,000
		Subtotal Buildings Partially Funded	140,925	200,000	30,000	30,000	30,000	30,000	320,000
		Total Buildings	1,405,598	3,658,705	838,705	30,000	30,000	30,000	4,587,410

Project No.	Fund	Project Description	Budget FY 2020-2021	New Request FY 2021-2022	New Request FY 2022-2023	Plan FY 2023-2024	Plan FY 2024-2025	Plan FY 2025-2026 and Beyond	Total
Drainage, Sewers, and Waterlines Fully Funded									
804 0017 2001		Moreno MDP Line E-18 and E-19	139,382						
804 0017 2002		Moreno MDP Line E-18 and E-19	2,020,000						
804 0014 2001		Sunnymead - Flaming Arrow Drive Storm Drain	135,645						
804 0014 2012		Sunnymead - Flaming Arrow Drive Storm Drain	20,000						
804 0014 2002		Sunnymead - Flaming Arrow Drive Storm Drain	391,227						
804 0015 2002		Sunnymead MDP Line B-10A	1,924,619						
		Subtotal Drainage, Sewers, and Waterlines Fully Funded	4,984,453						
Drainage, Sewers, and Waterlines Partially Funded									
804 0015 2008		Citywide Full Trash Capture Device Installation	160,000	80,000	80,000	80,000	80,000	456,000	776,000
804 0007 7077 2001		Moreno MDP Line K-1, K-4 Sbg 3	43,990						
804 0008 2001		Sunnymead Master Drainage Plan - Storm Drain Lines F and F-7	35,000						
804 0008 2002		Sunnymead Master Drainage Plan - Storm Drain Lines F and F-7	105,000						
804 0008 2002		Sunnymead Master Drainage Plan - Storm Drain Lines F and F-7							
		Subtotal Drainage, Sewers, and Waterlines Partially Funded	343,990	80,000	80,000	80,000	80,000	456,000	12,490,000
		Total Drainage, Sewers, and Waterlines	5,185,403						
Electric Utility Fully Funded									
6011		Alessandro/ Day/ Cactus Loop			1,210,000				1,210,000
6011		Curbside Electric Vehicle Charging Station		66,000					66,000
6011		Electric Vehicle Charging Station Corporate Yard		116,000					116,000
805 0046 6011		Electrical System Automation	2,498,862						
805 0055 6011		Eucalyptus Avenue Line Extension	545,883						
6011		Gas Switch Alternatives		591,536					591,536
6011		Indian Street Line Extension from Gentian Avenue to Iris Avenue			687,500				687,500
6011		ISS Network Cyber Security			1,146,200				1,146,200
805 0056 6011		Moreno Beach Bridge Conduit Project	494,911						494,911
6011		Moreno Beach Drive Line Extension from Cactus Avenue to John F. Kennedy Drive			1,155,000				1,155,000
6011		Moreno Valley Fire Station #6 SCE to MVU Cutover		141,000					141,000
6011		MoVal Substation Relay Upgrades		80,000					80,000
6011		Nason Street Loop Tie from Iris Avenue to Cactus Avenue			1,102,200				1,102,200
		Subtotal Electric Utility Fully Funded	3,539,656	1,489,536	5,300,900				6,790,436
		Total Electric Utility	3,539,656		5,300,900				6,790,436
Landscaping Partially Funded									
806 50 2050		Landscape Maintenance Districts Capital Improvement Renovation			50,000	75,000	100,000	125,000	350,000
806 50 5013		Landscape Maintenance Districts Capital Improvement Renovation	27,952			40,000	90,000	440,000	621,000
806 50 5014		Landscape Maintenance Districts Capital Improvement Renovation	789,992			300,000	300,000	450,000	2,075,000
806 50 5111		Landscape Maintenance Districts Capital Improvement Renovation	297,440			500,000	500,000	500,000	2,996,000
806 50 5112		Landscape Maintenance Districts Capital Improvement Renovation	223,255			60,000	60,000	60,000	508,000
806 50 5114		Landscape Maintenance Districts Capital Improvement Renovation				25,000	50,000	75,000	150,000
		Subtotal Landscaping Partially Funded	1,338,639		1,035,000	1,000,000	1,100,000	1,650,000	6,700,000
		Total Landscaping	1,338,639		1,035,000	1,000,000	1,100,000	1,650,000	6,700,000
Parks Fully Funded									
807 0045 3016		Cottonwood Golf Center Irrigation Improvements	262,490						
807 0049 2300		Demonstration Garden	202,952						
807 0049 3015		Demonstration Garden	491,763						
807 0053 5113		Drinking Fountain Replacements at Various Parks	36,510						
807 0053 5113		LED Lighting Improvements at Various Parks	120,000						
3015		Moreno Valley Community Park Picnic Shelter Replacement		175,000					175,000
807 0047 3006		Moreno Valley Community Park Soccer Field Improvements	235,387						
3015		Moreno Valley Park Ball Field Lighting LED Retrofit		700,000					700,000
3015		Pump Track at March Field Park		1,250,000					1,250,000
807 0031 50 57 3015		Rancho Verde Park	165,618						
		Subtotal Parks Fully Funded	1,504,918	2,205,000	72,000				2,277,000
Parks Partially Funded									
807 0005 50 57 3016		Annual ADA Park Improvements	414,201	50,000	50,000	50,000	50,000	50,000	250,000
807 0054 3015		Moreno Valley Bark Park	172,000						
807 0054 2300		Moreno Valley Bark Park							
807 0004 50 57 3016		Replacement Playground Equipment	134,437	200,000	75,000	2,723,519			2,723,519
		Subtotal Parks Partially Funded	720,638	250,000	125,000	2,848,519	50,000	50,000	3,233,519
		Total Parks	2,225,556	2,455,000	197,000	2,848,519	50,000	50,000	5,660,519
Traffic Signals Fully Funded									
808 0018 2301		Advanced Dilemma Zone Detection at Certain Intersections							
2000		Citywide Traffic Sign Retroreflectivity Inventory (2022)	3,576,409						
808 0025 3302		Moreno Valley Ranch ITS	650,901	100,000					100,000
808 0030 3302		Pigeon Pass Road ITS	343,640						
808 0019 1010		Road Safety Audit on Ironwood Avenue between Vista De Cerros Drive and Nason Street	691						
808 0019 2301		Road Safety Audit on Ironwood Avenue between Vista De Cerros Drive and Nason Street	294,285						
808 0020 2301		Road Safety Audit on Kittinging Street between Sunnymead Blvd and Alessandro Blvd	118,035						
808 0026 2301		South Lasalle Street Safety Corridor	429,303						
808 0028 2301		Upgrade Existing Marked Crosswalks on Arterials	379,526						
		Subtotal Traffic Signals Fully Funded	5,792,790	100,000					100,000

Project No.	Fund	Project Description	Budget FY 2020-2021	New Request FY 2021-2022	New Request FY 2022-2023	Plan FY 2023-2024	Plan FY 2024-2025	Plan FY 2025-2026 and Beyond	Total
Traffic Signals Partially Funded									
808 0004 70 76 2005		Traffic Signal Coordination Program	117,684	20,000	20,000	30,000	30,000	30,000	130,000
808 0013 70 76 2000		Traffic Signal Equipment Upgrades		200,000					200,000
808 0013 70 76 2001		Traffic Signal Equipment Upgrades	154,067	80,000	80,000	80,000	80,000	80,000	400,000
		Subtotal Traffic Signals Partially Funded	291,751	300,000	100,000	110,000	110,000	110,000	790,000
		Total Traffic Signals	6,074,541	400,000	100,000	110,000	110,000	110,000	830,000
Underground Utilities Fully Funded									
809 0001 30 39 7220		Citywide Fiber Optic Communication Expansion	298,355						
		Subtotal Underground Utilities Fully Funded	298,355						
		Total Underground Utilities	298,355						
Other									
810 0001 30 39 7220		Citywide Camera Surveillance System	36,804						
		Subtotal Other Fully Funded	36,804						
		Total Other	36,804						
		Total Fully Funded	64,599,095	10,953,241	9,781,605				20,734,846
		Total Partially Funded	9,756,076	5,090,000	1,965,000	45,636,477	5,315,000	159,470,000	215,426,477
		Grand Total	74,295,571	16,043,241	11,746,605	49,636,477	5,315,000	159,470,000	236,161,233

Capital Improvement Plan
FY 2021-2026 and Beyond

Summary By Category

Amounts in \$1,000's

Category	New Request FY 21/22	New Request FY 22/23	Plan FY23/24	Plan FY24/25	Plan FY25/26 & Beyond	Grand Totals
Streets and Highways	4,235	4,185	45,346	34,422	737,487	825,676
Bridges	10	10	12,694	192	39,312	52,218
Buildings	3,659	839	3,370	8,514	267,626	284,006
Drainage	1,880	80	80	80	42,870	44,990
Electric Utility	1,490	5,301	1,662	486	24,875	33,813
Landscaping	1,915	1,035	1,000	1,100	1,650	6,700
Parks	2,455	197	2,970	1,563	255,549	262,734
Traffic Signals	400	100	1,489	110	39,730	41,829
Underground Utilities	-	-	-	-	1,129	1,129
Other	-	-	-	-	-	-
Total by Fiscal Year	16,043	11,747	68,610	46,467	1,410,228	1,553,096

Attachment: Exhibit A - Proposed CIP FYs 2021/22 - 2022/23 (4417 : Capital Improvement Plan Fiscal Years 2021/22 - 2022/23)

FYs 2021/22 & 2022/23 PROJECTS

L I S T E D B Y F U N D

PROPOSED
CAPITAL IMPROVEMENT PLAN

fiscal years 2021/22 & 2022/23

Attachment: Exhibit A - Proposed CIP FYs 2021/22 - 2022/23 (4417 : Capital Improvement Plan Fiscal Years 2021/22 - 2022/23)



Project No.	Fund	Project Description	Budget FY 2020-2021	New Request FY 2021-2022	New Request FY 2022-2023	Plan FY 2023-2024	Plan FY 2024-2025	Plan FY 2025-2026 and Beyond	Total
Fund 1010 - General Fund									
Public Works Department/ Transportation Engineering Division									
801 0015 70 76 1010		Residential Traffic Management Program	-	-	-	-	-	50,000	50,000
		Subtotal 1010-70-76-80001						50,000	50,000
Public Works Department/ Capital Projects Division									
801 0064 1010		SR-60/ Redlands Boulevard Interchange	5,187	-	-	-	-	-	-
		Subtotal 1010-70-77-80001	5,187	-	-	-	-	-	-
Public Works Department/ Transportation Engineering Division									
808 0019 1010		Road Safety Audit on Ironwood Avenue between Vista De Cerros Drive and Nason Street	691	-	-	-	-	-	-
		Subtotal 1010-70-76-80008	691	-	-	-	-	-	-
		Total Fund 1010	5,878	-	-	-	-	50,000	50,000
Fund 2000 - Gas Tax									
Public Works Department/ Transportation Engineering Division									
801 0015 70 76 2000		Residential Traffic Management Prgrm	200,000	50,000	50,000	50,000	50,000	-	200,000
		Subtotal 2000-70-76-80001	200,000	50,000	50,000	50,000	50,000	-	200,000
Public Works Department/ Capital Projects Division									
801 0008 70 2000		Annual ADA Compliant Access Upgrades	764,600	-	-	-	-	-	-
801 0065 2000		Easement Acquisition for Street Purposes	-	25,000	200,000	200,000	200,000	200,000	800,000
801 0010 70 2000		Heacock Street South Extension	-	50,000	25,000	25,000	25,000	25,000	125,000
801 0083 2000		Pavement Management Program (PMP)	-	-	150,000	-	-	150,000	300,000
801 0087 2000A		Perris Boulevard/ 330 Ft North of Bay Avenue	3,292,736	250,000	-	-	-	-	250,000
2000A		Citywide Pavement Rehabilitation Program FY20/21	-	3,600,000	-	-	-	-	3,600,000
2000A		Citywide Pavement Rehabilitation Program FY22/23	-	-	3,600,000	-	-	-	3,600,000
2000A		Citywide Pavement Rehabilitation Program FY23/24 and Beyond	-	-	-	3,600,000	3,600,000	-	7,200,000
		Subtotal 2000-70-77-80001	4,057,336	3,925,000	3,975,000	3,825,000	3,825,000	3,975,000	19,525,000
Public Works Department/ Maintenance & Operations Division									
2000		Citywide Concrete Repair	-	100,000	100,000	-	-	200,000	400,000
		Subtotal 2000-70-78-80001	-	100,000	100,000	-	-	200,000	400,000
Public Works Department/ Capital Projects Division									
802 0002 70 77 2000		Bridge Annual Inspection Program	30,477	10,000	10,000	10,000	10,000	10,000	50,000
802 0006 2000		Bridge Preventative Maintenance Program - Implementation Phase	135,256	-	-	695,000	-	-	698,000
		Subtotal 2000-70-77-80002	165,733	10,000	10,000	708,000	10,000	10,000	748,000
Public Works Department/ Transportation Engineering Division									
808 0013 70 76 2000		Citywide Traffic Sign Retroreflectivity Inventory (2022)	-	100,000	-	-	-	-	100,000
		Subtotal 2000-70-76-80008	-	100,000	-	-	-	-	100,000
		Total Fund 2000	4,423,069	4,385,000	4,135,000	4,583,000	3,885,000	4,185,000	21,173,000
Fund 2001 - Measure A									
Public Works Department/ Maintenance & Operations Division									
801 0017 70 78 2001		Annual Pavement Maintenance - Crack Seal	54,528	60,000	60,000	60,000	60,000	60,000	300,000
		Subtotal 2001-70-78-80001	54,528	60,000	60,000	60,000	60,000	60,000	300,000
Public Works Department/ Capital Projects Division									
804 0017 2001		Moreno MDP Line F-18 and F-19	139,382	-	-	-	-	-	-
804 0007 70 77 2001		Moreno MDP Line K-1 Stage 3 K-4	43,990	-	-	-	-	-	-
804 0014 2001		Sunnymead - Flaming Arrow Drive Storm Drain	135,845	-	-	-	-	-	-
804 0008 2001		Sunnymead MDP - Storm Drain Lines F and F-7	35,000	-	-	-	-	-	-
		Subtotal 2001-70-77-80004	354,217	-	-	-	-	-	-
Public Works Department/ Transportation Engineering Division									
808 0013 70 76 2001		Traffic Signal Equipment Upgrades	164,067	80,000	80,000	80,000	80,000	80,000	400,000
		Subtotal 2001-70-76-80008	164,067	80,000	80,000	80,000	80,000	80,000	400,000
		Total Fund 2001	572,812	140,000	140,000	140,000	140,000	140,000	700,000
Fund 2005 - Air Quality Management									
Public Works Department/ Transportation Engineering Division									
808 0004 70 76 2005		Traffic Signal Coordination Program	117,684	20,000	20,000	30,000	30,000	30,000	130,000
		Subtotal 2005-70-76-80008	117,684	20,000	20,000	30,000	30,000	30,000	130,000
		Total Fund 2005	117,684	20,000	20,000	30,000	30,000	30,000	130,000
Fund 2008 - Storm Water Management									
Public Works Department/ Land Development Division									
804 0018 2008		Citywide Full Trash Capture Device Installation	160,000	80,000	80,000	80,000	80,000	456,000	776,000
		Subtotal 2008-70-29-80004	160,000	80,000	80,000	80,000	80,000	456,000	776,000
		Total Fund 2008	160,000	80,000	80,000	80,000	80,000	456,000	776,000

Project No.	Fund	Project Description	Budget FY 2020-2021	Fund 2050 - CIP No 2014-01	New Request FY 2021-2022	New Request FY 2022-2023	Plan FY 2023-2024	Plan FY 2024-2025	Plan FY 2025-2026 and Beyond	Total
Financial & Management Services Department/ Special Districts Division										
806 SD 2050		Landscape Maintenance Districts Capital Improvement Renovation	-	-	-	50,000	75,000	100,000	125,000	350,000
		Subtotal 2050-30-79-9006	-	-	-	50,000	75,000	100,000	125,000	350,000
		Total Fund 2050	-	-	-	50,000	75,000	100,000	125,000	350,000
Public Works Department/ Capital Projects Division										
801 0021 70 77 2300	SR-60/ Moreno Beach IC Phase 2		1,875,000							
		Subtotal 2300-70-77-80001	1,875,000							
Parks & Community Services Department/ Parks Maintenance Division										
807 0049 2300	Demonstration Garden		202,952							
807 0054 2300	Moreno Valley Park Park		-			2,723,519	2,723,519			2,723,519
		Subtotal 2300-50-57-80007	202,952			2,723,519	2,723,519			2,723,519
		Total Fund 2300	2,077,952			2,723,519	2,723,519			2,723,519
Public Works Department/ Capital Projects Division										
801 0077 2301	Juan Bautista de Anza Multi-Use Trail/ El Potrero Park to Lake Perris State Park - ATP 3		2,571,257							
801 0073 2301	Juan Bautista de Anza Multi-Use Trail/ Iris Avenue to El Potrero Park - ATP 2		1,126,625							
801 0086 2301	Juan Bautista de Anza Multi-Use Trail/ Moreno Valley Mall to Iris Avenue - ATP 4		8,375,419							
801 0021 70 77 2301	SR-60/ Moreno Beach IC Phase 2		16,800,000							
		Subtotal 2301-70-77-80001	28,873,301							
Public Works Department/ Capital Projects Division										
802 0006 2301	Bridge Preventative Maintenance Program - Implementation Phase		-			6,424,958	6,424,958			6,424,958
		Subtotal 2301-70-77-80002	-			6,424,958	6,424,958			6,424,958
Public Works Department/ Capital Projects Division										
804 0008 2301	Sunnymead MDP - Storm Drain Lines F and F-7		105,000							
		Subtotal 2301-70-77-80004	105,000							
Public Works Department/ Transportation Engineering Division										
808 0018 2301	Advanced Dilemma Zone Detection at Certain Intersections		3,576,409							
808 0019 2301	Road Safety Audit on Ironwood Avenue between Vista De Cerros Drive and Nason Street		294,285							
808 0020 2301	Road Safety Audit on Kitching Street between Sunnymead Blvd and Alessandro Blvd		118,035							
808 0026 2301	South Lassele Street Safety Corridor		429,303							
808 0028 2301	Upgrade Existing Marked Crosswalks on Arterials		379,526							
		Subtotal 2301-70-76-80008	4,797,558							
		Total Fund 2301	33,775,859				6,424,958			6,424,958
Fund 2512 - Community Development Block Grant (CDBG)										
Public Works Department/ Capital Projects Division										
801 0088 2512	Pavement Rehabilitation for Various Streets (CDBG FY 20/21)		1,453,156							
		Subtotal 2512-70-77-80001	1,453,156							
Public Works Department/ Capital Projects Division										
804 0014 2512	Sunnymead - Flaming Arrow Drive Storm Drain		250,000							
		Subtotal 2512-70-77-80004	250,000							
		Total Fund 2512	1,703,156							
Fund 2800 - SCAG Article 3										
Public Works Department/ Capital Projects Division										
801 0076 2800	Heacock St Pedestrian and Bicycle Enhancements/ Gregory Lane		520,000							
		Subtotal 2800-70-77-80001	520,000							
		Total Fund 2800	520,000							
Parks & Community Services Department/ Library Services Division										
3000	Main Library Renovation (Design)		-			250,000				250,000
		Subtotal 3000-50-56-80003	-			250,000				250,000
Parks & Community Services Department/ Park Maintenance Division										
803 0044 3000	Electronic Marquee Sign		480,000							
3000	Grand Valley Ballroom Patio Lighting		-			200,000				200,000
		Subtotal 3000-50-57-80003	480,000			200,000				200,000
Public Works Department/ Land Development Division										
803 0043 3000	Corporate Yard Master Plan Improvements		189,600			25,000				25,000
		Subtotal 3000-70-29-80003	189,600			25,000				25,000
Public Works Department/ Maintenance & Operations Division										
803 0042 3000	Corporate Yard Building/ Fleet Shop Remodel		485,431			808,705				1,617,410
3000	Fire Alarm Systems Replacement		-			1,500,000				1,500,000
3000	Public Safety Building HVAC Replacement		-			141,281				141,281
3000	Roof Rehabilitation		-			2,449,586				2,449,586
		Subtotal 3000-70-40-80003	485,431			2,449,586				3,256,691
		Total Fund 3000	1,155,031			2,924,986				3,739,691

Project No.	Fund	Project Description	Budget FY 2020-2021	New Request FY 2021-2022	New Request FY 2022-2023	Plan FY 2023-2024	Plan FY 2024-2025	Plan FY 2025-2026 and Beyond	Total
Fund 3002 - Public Works General Capital Projects									
Public Works Department/ Capital Projects Division									
801 0021 70 71 3002	SR-60/ Moreno Beach IC Phase 2		2,560,110	-	-	-	-	-	-
	Subtotal 3002-70-71-80001		2,560,110	-	-	-	-	-	-
Public Works Department/ Capital Projects Division									
804 0017 3002	Moreno MDP Line F-18 and F-19		2,000,000	-	-	-	-	-	-
804 0014 3002	Sunnymead - Flaming Arrow Drive Storm Drain		391,527	-	-	-	-	-	-
804 0015 3002	Sunnymead MDP Line B-16A		1,924,659	-	-	-	-	-	-
804 0008 3002	Sunnymead Master Drainage Plan - Storm Drain Lines F and F-7		-	1,800,000	-	-	-	-	1,800,000
	Subtotal 3002-70-71-80004		4,316,186	1,800,000	-	-	-	-	1,800,000
	Total Fund 3002		6,876,296	1,800,000	-	-	-	-	1,800,000
Fund 3003 - TUMF Capital Projects									
Public Works Department/ Capital Projects Division									
801 0010 70 71 3003	Hearcock Street South Extension		893,905	-	-	-	-	8,450,000	8,450,000
801 0021 70 71 3003	SR-60/ Moreno Beach IC Phase 2		7,226,634	-	-	-	-	-	-
801 0064 3003	SR-60/ Redlands Boulevard Interchange		3,500,000	-	-	-	-	58,465,000	58,465,000
	Subtotal 3003-70-71-80001		11,620,539	-	-	-	-	66,915,000	66,915,000
	Total Fund 3003		11,620,539	-	-	-	-	66,915,000	66,915,000
Fund 3004 - Traffic Mitigation									
Public Works Department/ Transportation Engineering Division									
801 0073 3004	Juan Bautista de Anza Multi-Use Trail - ATP 2		4,873	100,000	-	-	-	-	100,000
	Subtotal 3004-70-76-80001		4,873	100,000	-	-	-	-	100,000
	Total Fund 3004		4,873	100,000	-	-	-	-	100,000
Fund 3006 - Parks and Community Services Capital Projects									
Parks & Community Services Department/ Parks Maintenance Division									
807 0047 3006	Moreno Valley Community Park Soccer Field Improvements		235,587	-	-	-	-	-	-
	Subtotal 3006-50-57-80007		235,587	-	-	-	-	-	-
	Total Fund 3006		235,587	-	-	-	-	-	-
Fund 3008 - Capital Projects Reimbursements									
Public Works Department/ Capital Projects Division									
801 0088 3008	Pavement Rehabilitation for Various Streets (CD8G FY 20/21)		119,502	-	-	-	-	-	-
	Subtotal 3008-70-77-80001		119,502	-	-	-	-	-	-
Public Works Department/ Capital Projects Division									
802 0003 70 71 3008	SR-60/ Mason Overcrossing Bridge		4,565	-	-	-	-	-	-
	Subtotal 3008-70-71-80002		4,565	-	-	-	-	-	-
	Total Fund 3008		124,067	-	-	-	-	-	-
Fund 3015 - PCS Capital Proj (Parkland)									
Parks & Community Services Department/ Parks Maintenance Division									
801 0077 3015	Juan Bautista de Anza Multi-Use Trail - ATP 3		350,000	-	-	-	-	-	-
	Subtotal Parkland 3015-50-57-80001		350,000	-	-	-	-	-	-
Parks & Community Services Department/ Parks Maintenance Division									
807 0049 3015	Demonstration Garden		491,761	-	-	-	-	-	-
807 0054 3015	Moreno Valley Bark Park		172,000	-	-	-	-	-	-
3015	Moreno Valley Community Park Picnic Shelter Replacement		-	175,000	-	-	-	-	175,000
3015	Morrison Park Ball Field Lighting LED Retrofit		-	700,000	-	-	-	-	700,000
3015	Pump Track at March Field Park		-	1,250,000	-	-	-	-	1,250,000
807 0031 50 57 3015	Rancho Verde Park		165,618	-	-	-	-	-	-
	Subtotal Parkland 3015-50-57-80007		829,379	2,125,000	-	-	-	-	2,125,000
	Total Fund 3015		1,179,379	2,125,000	-	-	-	-	2,125,000
Fund 3016 - PCS Capital Proj (Quimby)									
Parks & Community Services Department/ Parks Maintenance Division									
801 0073 3016	Juan Bautista de Anza Multi-Use Trail - ATP 2		5,553	-	-	-	-	-	-
	Subtotal Quimby 3016-50-57-80001		5,553	-	-	-	-	-	-
Parks & Community Services Department/ Parks Maintenance Division									
803 0041 3016	Electronic Marquee Sign		32,974	-	-	-	-	-	-
803 0030 3016	Park Restroom Renovations at Various Sites		140,925	200,000	30,000	30,000	30,000	30,000	320,000
803 0031 3016	Towngate Community Center Renovation		16,668	-	-	-	-	-	-
	Subtotal Quimby 3016-50-57-80003		190,567	200,000	30,000	30,000	30,000	30,000	320,000
Parks & Community Services Department/ Parks Maintenance Division									
807 0005 50 57 3016	Annual ADA Park Improvements		414,201	50,000	50,000	50,000	50,000	50,000	250,000
807 0045 3016	Cottonwood Golf Center Irrigation Improvements		262,490	200,000	75,000	75,000	75,000	75,000	350,000
807 0004 50 57 3016	Replacement Playground Equipment		134,437	250,000	125,000	125,000	125,000	125,000	600,000
	Subtotal Quimby 3016-50-57-80007		811,128	450,000	155,000	155,000	155,000	155,000	920,000
	Total Fund 3016		1,007,248	450,000	155,000	155,000	155,000	155,000	920,000

Project No.	Fund	Project Description	Budget FY 2020-2021	New Request FY 2021-2022	New Request FY 2022-2023	Plan FY 2023-2024	Plan FY 2024-2025	Plan FY 2025-2026 and Beyond	Total
Fund 3301 - DIF Arterial Streets Capital Projects									
Public Works Department/ Capital Projects Division									
801 0076 3301		Heacock St Pedestrian and Bicycle Enhancements/ Gregory Lane	54,531	-	-	-	-	-	-
		Subtotal 3301-70-77-80001	54,531	-	-	-	-	-	-
Public Works Department/ Capital Projects Division									
802 0004 3301		Indian Street/ Cardinal Avenue Bridge (Over Lateral A)	843,280	-	-	5,500,000	-	-	5,500,000
		Subtotal 3301-70-77-80002	843,280	-	-	5,500,000	-	-	5,500,000
		Total Fund 3301	897,811	-	-	5,500,000	-	-	5,500,000
Fund 3302 - DIF Traffic Signal Capital Projects									
Public Works Department/ Transportation Engineering Division									
808 0025 3302		Moreno Valley Ranch ITS	650,901	-	-	-	-	-	-
808 0030 3302		Pigeon Pass Road ITS	343,640	-	-	-	-	-	-
		Subtotal 3302-70-76-80008	994,541	-	-	-	-	-	-
		Total Fund 3302	994,541	-	-	-	-	-	-
Fund 3311 - DIF Interchange Improvements Capital Projects									
Public Works Department/ Capital Projects Division									
801 0021 70 77 3311		SR-60/ Moreno Beach IC Phase 2	925,090	-	-	-	-	-	-
801 0052 70 77 3311		SR-60/ World Logistics Center Parkway Interchange	503,300	-	-	-	-	-	-
		Subtotal 3311-70-77-80001	1,428,390	-	-	-	-	-	-
Public Works Department/ Capital Projects Division									
802 0003 70 77 3311		SR-60/ Nelson Overcrossing Bridge	30,000	-	-	-	-	-	-
		Subtotal 3311-70-77-80002	30,000	-	-	-	-	-	-
		Total Fund 3311	1,458,390	-	-	-	-	-	-
Fund 5011 - Zone A Parks									
Parks & Community Services Department/ Parks Maintenance Division									
5011		Roof Rehabilitation	-	533,719	-	-	-	-	533,719
		Subtotal 5011-50-57-80003	-	533,719	-	-	-	-	533,719
		Total Fund 5011	-	533,719	-	-	-	-	533,719
Fund 5013 - Zone E Extensive Landscape									
Financial & Management Services Department/ Special Districts Division									
806 SD 5013		Landscape Maintenance Districts Capital Improvement Renovation	27,952	51,000	-	40,000	90,000	440,000	621,000
		Subtotal 5013-30-79-79006	27,952	51,000	-	40,000	90,000	440,000	621,000
		Total Fund 5013	27,952	51,000	-	40,000	90,000	440,000	621,000
Fund 5014 - LMD 2014-02 Landscape Maint Dist									
Financial & Management Services Department/ Special Districts Division									
806 SD 5014		Landscape Maintenance Districts Capital Improvement Renovation	789,992	600,000	425,000	300,000	300,000	450,000	2,075,000
		Subtotal 5014-30-79-79006	789,992	600,000	425,000	300,000	300,000	450,000	2,075,000
		Total Fund 5014	789,992	600,000	425,000	300,000	300,000	450,000	2,075,000
Fund 5111 - Zone D Standard Landscape									
Financial & Management Services Department/ Special Districts Division									
806 SD 5111		Landscape Maintenance Districts Capital Improvement Renovation	297,440	996,000	500,000	500,000	500,000	500,000	2,996,000
		Subtotal 5111-30-79-79006	297,440	996,000	500,000	500,000	500,000	500,000	2,996,000
		Total Fund 5111	297,440	996,000	500,000	500,000	500,000	500,000	2,996,000
Fund 5112 - Zone M Medians									
Financial & Management Services Department/ Special Districts Division									
806 SD 5112		Landscape Maintenance Districts Capital Improvement Renovation	223,255	268,000	60,000	60,000	60,000	60,000	508,000
		Subtotal 5112-30-79-79006	223,255	268,000	60,000	60,000	60,000	60,000	508,000
		Total Fund 5112	223,255	268,000	60,000	60,000	60,000	60,000	508,000
Fund 5113 - CFD #1									
Parks & Community Services Department/ Parks Maintenance Division									
803 0031 5113		Towngate Community Center Renovation	60,000	-	-	-	-	-	-
		Subtotal 5113-50-57-80003	60,000	-	-	-	-	-	-
Parks & Community Services Department/ Parks Maintenance Division									
807 0052 5113		Drinking Fountain Replacements at Various Parks	26,510	30,000	22,000	-	-	-	52,000
807 0053 5113		LED Lighting Improvements at Various Parks	120,000	50,000	50,000	-	-	-	100,000
		Subtotal 5113-50-57-80007	146,510	80,000	72,000	-	-	-	152,000
		Total Fund 5113	206,510	80,000	72,000	-	-	-	152,000

Project No.	Fund	Project Description	Budget FY 2020-2021	New Request FY 2021-2022	New Request FY 2022-2023	Plan FY 2023-2024	Plan FY 2024-2025	Plan FY 2025-2026 and Beyond	Total
Financial & Management Services Department/ Special Districts Division									
806 SD 5114	5114	Landscape Maintenance Districts Capital Improvement Renovation	-	-	-	25,000	50,000	75,000	150,000
		Total Fund 5114	-	-	-	25,000	50,000	75,000	150,000
Fund 5114 - Zone 5									
Financial and Management Services Department/ Electric Utility Division									
6011	6011	Alessandro/ Day/ Cactus Loop	-	66,000	1,210,000	-	-	-	1,210,000
6011	6011	Curbside Electric Vehicle Charging Station	-	116,000	-	-	-	-	66,000
6011	6011	Electric Vehicle Charging Station Corporate Yard	-	-	-	-	-	-	116,000
805 0046	6011	Electrical System Automation	2,498,862	-	-	-	-	-	-
805 0055	6011	Eucalyptus Avenue Line Extension	545,883	591,536	-	-	-	-	591,536
6011	6011	Gas Switch Alternatives	-	687,500	-	-	-	-	687,500
6011	6011	Indian Street Line Extension from Gentian Avenue to Iris Avenue	-	1,146,200	-	-	-	-	1,146,200
6011	6011	ISS Network Cyber Security	-	95,000	-	-	-	-	95,000
805 0056	6011	Moreno Beach Bridge Conduit Project	494,911	400,000	-	-	-	-	400,000
6011	6011	Moreno Beach Drive Line Extension from Cactus Avenue to John F. Kennedy Drive	-	141,000	1,155,000	-	-	-	1,155,000
6011	6011	Moreno Valley Fire Station #6 SCE to MVU Cutover	-	80,000	-	-	-	-	141,000
6011	6011	MeVal Substation Relay Upgrades	-	-	-	-	-	-	80,000
6011	6011	Nason Street Loop Tie from Iris Avenue to Cactus Avenue	-	1,102,200	-	-	-	-	1,102,200
		Subtotal 6011-70-80-80005	3,539,656	1,489,536	5,300,900	-	-	-	6,790,436
		Total Fund 6011	3,539,656	1,489,536	5,300,900	-	-	-	6,790,436
Fund 7220 - Technology Services Asset Fund									
City Manager Department/ Technology Services Division									
809 0001 30 39 7220	7220	Citywide Fiber Optic Communication Expansion	298,355	-	-	-	-	-	-
		Subtotal 7220-16-39-80009	298,355	-	-	-	-	-	-
City Manager Department/ Technology Services Division									
810 0001 30 39 7220	7220	Citywide Camera Surveillance System	36,804	-	-	-	-	-	-
		Subtotal 7220-16-39-80010	36,804	-	-	-	-	-	-
		Total Fund 7220	335,159	-	-	-	-	-	-
UNFUNDED									
801 0052 70 77 UNF	UNF	SR-60/ World Logistics Center Parkway Interchange	-	-	-	23,000,000	-	76,000,000	99,000,000
804 0007 70 77 UNF	UNF	Moreno MDP Line K-1 Stage 3 K-4	-	-	-	-	-	3,014,000	3,014,000
804 0008 UNF	UNF	Sunnymead MDP - Storm Drain Lines F and F-7	-	-	-	23,000,000	-	6,900,000	6,900,000
		Subtotal UNF	-	-	-	23,000,000	-	85,914,000	108,914,000
		Total Fund UNF	-	-	-	23,000,000	-	85,914,000	108,914,000
		Grand Total	74,330,136	16,043,241	11,746,605	43,636,477	5,315,000	159,420,000	236,161,323

**Capital Improvement Plan
FY 2021-2026 and Beyond**

Summary By Fund

Amounts in \$1,000's

Project Fund	New Request FY 21/22	New Request FY 22/23	Plan FY23/24	Plan FY24/25	Plan FY25/26 & Beyond	Grand Totals
Fund 1010	0	0	0	0	50	50
Fund 2000	4,385	4,135	4,583	3,885	4,185	21,173
Fund 2001	140	140	140	140	140	700
Fund 2005	20	20	30	30	30	130
Fund 2008	80	80	80	80	456	776
Fund 2050	0	50	75	100	125	350
Fund 2300	0	0	2,724	0	0	2,724
Fund 2301	0	0	6,425	0	0	6,425
Fund 3000	2,925	809	0	0	0	3,734
Fund 3002	1,800	0	0	0	0	1,800
Fund 3003	0	0	0	0	66,915	66,915
Fund 3004	100	0	0	0	0	100
Fund 3015	2,125	0	0	0	0	2,125
Fund 3016	450	155	155	80	80	920
Fund 3301	0	0	5,500	0	0	5,500
Fund 5011	534	0	0	0	0	534
Fund 5013	51	0	40	90	440	621
Fund 5014	600	425	300	300	450	2,075
Fund 5111	996	500	500	500	500	2,996
Fund 5112	268	60	60	60	60	508
Fund 5113	80	72	0	0	0	152
Fund 5114	0	0	25	50	75	150
Fund 6011	1,490	5,301	0	0	0	6,790
Unfunded	0	0	47,974	41,152	1,336,722	1,425,849
Total by Fiscal Year	16,043	11,747	68,610	46,467	1,410,228	1,553,096

Attachment: Exhibit A - Proposed CIP FYs 2021/22 - 2022/23 (4417 : Capital Improvement Plan Fiscal Years 2021/22 - 2022/23)



UNFUNDED PROJECTS

PROPOSED
CAPITAL IMPROVEMENT PLAN

fiscal years 2021/22 & 2022/23



CITY OF MORENO VALLEY
 Capital Improvement Plan
 FYs 2021-2026 and Beyond

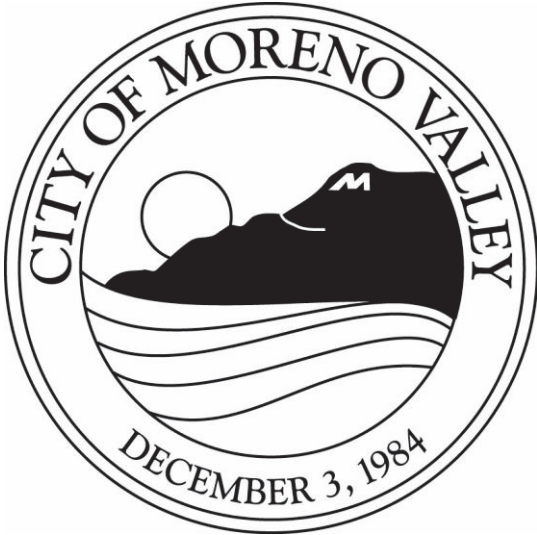
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CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond



Attachment: Exhibit A - Proposed CIP FYs 2021/22 - 2022/23 (4417 : Capital Improvement Plan Fiscal Years 2021/22 - 2022/23)

CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond

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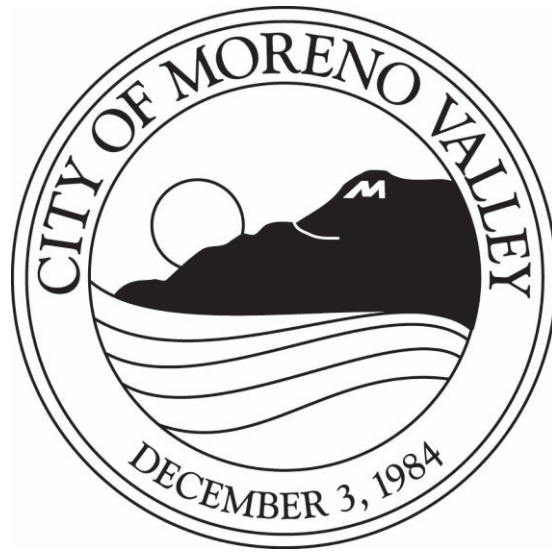
**CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond**

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CITY OF MORENO VALLEY
 Capital Improvement Plan
 FYs 2021-2026 and Beyond

<u>Project Name</u>	<u>Page #</u>
<i>Streets and Highways</i>	
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Theodore Street and WLC Parkway / Ironwood Avenue to Alessandro Boulevard	S-108

CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond



Attachment: Exhibit A - Proposed CIP FYs 2021/22 - 2022/23 (4417 : Capital Improvement Plan Fiscal Years 2021/22 - 2022/23)

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Alessandro Boulevard / Frederick Street to Theodore Street</p> <p>Department / Division: Public Works Department / Capital Projects Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>																					
<p>Project Description: This project will provide street widening improvements.</p> <p>Justification or Significance of Improvement: The purpose of this project is to improve segments of roadway where full-width street improvements do not currently exist. This project will provide widening in the corridor to accommodate traffic growth.</p> <p>Estimated Maintenance Costs: Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.</p>																							
<p>Project Location Map:</p>																							
<p>Council District(s):</p> <p><input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>																							
<p>FY 21/22 - FY 22/23 Budget</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:50%;"></th> <th style="width:10%;">New Request FY 2021/2022</th> <th style="width:10%;">New Request FY 2022/2023</th> <th style="width:10%;">FY 2023/2024</th> <th style="width:10%;">FY 2024/2025</th> <th style="width:10%;">FY 2025/2026 and Beyond</th> <th style="width:10%;">Total</th> </tr> </thead> <tbody> <tr> <td>PROJECT PHASE Prelim. Eng. / Environ. Design Right of Way Construction Other</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>PROJECT TOTAL</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">65,099,700</td> <td style="text-align: right;">65,099,700</td> </tr> </tbody> </table>				New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total	PROJECT PHASE Prelim. Eng. / Environ. Design Right of Way Construction Other							PROJECT TOTAL	0	0	0	0	65,099,700	65,099,700
	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total																	
PROJECT PHASE Prelim. Eng. / Environ. Design Right of Way Construction Other																							
PROJECT TOTAL	0	0	0	0	65,099,700	65,099,700																	
<p>FUNDING SOURCE</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:50%;"></th> <th style="width:10%;">New Request FY 2021/2022</th> <th style="width:10%;">New Request FY 2022/2023</th> <th style="width:10%;">FY 2023/2024</th> <th style="width:10%;">FY 2024/2025</th> <th style="width:10%;">FY 2025/2026 and Beyond</th> <th style="width:10%;">Total</th> </tr> </thead> <tbody> <tr> <td>TUMF Cap Proj (3003) 3003.UNF DIF Arterial Streets (2901) 3301.UNF</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>REVENUE TOTAL</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">65,099,700</td> <td style="text-align: right;">65,099,700</td> </tr> </tbody> </table>				New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total	TUMF Cap Proj (3003) 3003.UNF DIF Arterial Streets (2901) 3301.UNF							REVENUE TOTAL	0	0	0	0	65,099,700	65,099,700
	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total																	
TUMF Cap Proj (3003) 3003.UNF DIF Arterial Streets (2901) 3301.UNF																							
REVENUE TOTAL	0	0	0	0	65,099,700	65,099,700																	

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Alessandro Boulevard (Future) / Theodore Street to Gilman Springs Road

Department / Division: Public Works Department / Capital Projects Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:

Project Description:
This project will provide street widening improvements.

Justification or Significance of Improvement:
The project is needed to provide widening in the corridor to accommodate traffic growth.

Estimated Maintenance Costs:
Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.

Council District(s):
 District 1
 District 2
 District 3
 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other	0	0	0	0	0	223,700 450,200 3,376,200 18,454,600 22,504,700
PROJECT TOTAL	0	0	0	0	0	22,504,700
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	Total
TUMF Cap Proj (3003) 3003.UNF DIF Arterial Streets (2901) 3301.UNF	0	0	0	0	13,502,800 9,001,900	13,502,800 9,001,900
REVENUE TOTAL	0	0	0	0	22,504,700	22,504,700

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Alessandro Boulevard / Old 215 Frontage Road to Old I-215 Widening</p> <p>Department / Division: Public Works Department / Transportation Engineering Division</p>		<p>Project Status:</p> <input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold		<p>Project Priority in CIP Category:</p> <input type="checkbox"/> Essential (Start within 1 yr) <input checked="" type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)			
<p>Project Description: The project would modify the intersection of Old 215 and Alessandro Boulevard to remove the existing "pork chop" islands on the north side, relocating the traffic signals to the curb returns; install curb, gutter, sidewalk, bike lanes, curb return, and bus pad at the northwest corner, extending westerly to meet existing sidewalk; widen 300 feet of roadway on approach to the I-215 northbound ramp intersection; and modify the ramp intersection signal to provide three continuous westbound through lanes through the project limits.</p> <p>Justification or Significance of Improvement: The project would eliminate a bottleneck on Alessandro Boulevard, thereby improving mobility for the City's residents.</p> <p>Estimated Maintenance Costs: Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.</p>		<p>Project Location Map:</p>					
		<p>Council District(s):</p> <input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4					
		<p>FY 21/22 - FY 22/23 Budget</p>					
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other				91,100 489,000			91,100 489,000
PROJECT TOTAL	0	0	0	580,100	0	0	580,100
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Unfunded UNF				580,100			580,100
REVENUE TOTAL	0	0	0	580,100	0	0	580,100

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Alessandro Boulevard / Old 215 Frontage Road to Frederick Street</p>		<p>Project Status:</p> <p><input type="checkbox"/> New <input type="checkbox"/> Deleted</p> <p><input type="checkbox"/> In Progress <input type="checkbox"/> On Hold</p> <p><input type="checkbox"/> Completed <input checked="" type="checkbox"/></p>		<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr)</p> <p><input type="checkbox"/> Necessary (Start within 1 to 3 yrs)</p> <p><input type="checkbox"/> Desirable (Start within 3 to 5 yrs)</p> <p><input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>			
<p>Department / Division: Public Works Department / Capital Projects Division</p>		<p>Project Location Map:</p>					
<p>Project Description:</p> <p>This project utilized FY 2008/2009 obligated TUMF funds for the PA&ED planning phase of the Alessandro Boulevard improvements. The objective of this project is to add travel lanes in the east-west direction by acquiring right of way and widening Alessandro Boulevard from four (4) lanes to six (6) lanes from Frederick Street to the Old 215 with transition lanes to I-215. Street improvements will include retaining walls, tree removals, grading, curb and gutter, sidewalk, pavement, bike lanes, and signing and striping. There are currently no additional TUMF allocations from the Western Riverside Council of Governments (WRCOG) to continue this project.</p> <p>PA&ED: Completed January 2010 Design: Subject to available funding Construction: Subject to available funding</p> <p>This project was previously funded with TUMF funds.</p>		<p>Justification or Significance of Improvement:</p> <p>There are currently no additional TUMF funding allocations to continue this project. The improvements are of regional significance to the area and will mitigate traffic congestion within the region.</p>					
<p>Estimated Maintenance Costs:</p> <p>Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.</p>		<p>Council District(s):</p> <p><input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>					
		FY 21/22 - FY 22/23 Budget					
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design						313,000	313,000
Right of Way Construction						2,276,900	2,276,900
Other						2,051,800	2,051,800
PROJECT TOTAL	0	0	0	0	0	4,641,700	4,641,700
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
DIF Arterial Streets (2901) 3301 UNF						4,641,700	4,641,700
REVENUE TOTAL	0	0	0	0	0	4,641,700	4,641,700

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Atwood Avenue / Perris Boulevard to Princess Lane

Department / Division: Public Works Department / Capital Projects Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:

Justification or Significance of Improvement:
 The purpose of this project is to improve segments of roadway where full-width street and sidewalk improvements do not currently exist.

Estimated Maintenance Costs:
 Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.

Council District(s):
 District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design					6,100	6,100
Right of Way Construction					60,800	60,800
Other (Utility Relocation)					42,500	42,500
PROJECT TOTAL	0	0	0	0	1,178,600	1,178,600
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	Total
Unfunded UNF					1,178,600	1,178,600
REVENUE TOTAL	0	0	0	0	1,178,600	1,178,600

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Bay Avenue / Day Street to Grant Street

Department / Division: Public Works Department / Capital Projects Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:



Council District(s):

District 1
 District 2
 District 3
 District 4

Project Description:
This project will provide street improvements that include sidewalk, curb, gutter, median, asphalt concrete pavement, and striping.

Justification or Significance of Improvement:


The purpose of the project is to improve segments of roadway where full-width street improvements do not currently exist.

Estimated Maintenance Costs:

Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						159,200 216,300 164,600 1,195,000 1,735,100
PROJECT TOTAL	0	0	0	0	0	1,735,100
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				Total
Unfunded UNF						1,735,100
REVENUE TOTAL	0	0	0	0	0	1,735,100

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Bay Avenue / Old 215 Frontage Road to Day Street</p> <p>Department / Division: Public Works Department / Capital Projects Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>																																																						
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<p>Project Description: This project will provide street improvements that include sidewalk, curb, gutter, median, asphalt concrete pavement, and striping.</p> <p>Justification or Significance of Improvement: The purpose of this project is to improve segments of roadway where full-width street improvements do not currently exist.</p> <p>Estimated Maintenance Costs: Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.</p>																																																								
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		FY 21/22 - FY 22/23 Budget																																																						
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total																																																	
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PROJECT TOTAL	0	0	0	0	0	2,388,700	2,388,700																																																	
FUNDING SOURCE		New Request FY 2021/2022		FY 2023/2024		FY 2025/2026 and Beyond																																																		
Unfunded UNF																																																								
REVENUE TOTAL	0	0	0	0	0	2,388,700	2,388,700																																																	

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Box Springs Road / West of Clark Street to Day Street</p>		<p>Project Status:</p> <input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold		<p>Project Priority in CIP Category:</p> <input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input checked="" type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)			
<p>Department / Division: Public Works Department / Capital Projects Division</p>		<p>Project Location Map:</p>					
<p>Project Description: The objective of this project is to provide an additional eastbound lane on the south side of Box Springs Road. The construction will include curb, gutter, sidewalks, traffic signal modifications, storm drain improvements, and right of way acquisitions. These improvements will mitigate traffic congestion by reducing travel time and fuel consumption. This project was previously funded through TUMF and Measure A.</p> <p>Justification or Significance of Improvement: This project will provide improvements that will mitigate traffic congestion by reducing travel time and fuel consumption.</p> <p>Estimated Maintenance Costs: Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.</p>		<p>Council District(s):</p> <input type="checkbox"/> District 1 <input checked="" type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4					
		FY 21/22 - FY 22/23 Budget					
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other				182,300		182,300	364,600 425,300 2,577,000 182,300
PROJECT TOTAL	0	0	0	0	182,300	3,366,900	3,549,200
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
TUMF Cap Proj (3003) 3003.UNF Measure A (2001) 2001.UNF					182,300	3,063,100	3,063,100 486,100
REVENUE TOTAL	0	0	0	0	182,300	3,366,900	3,549,200

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Brodiaea Avenue / Quincy Street to Wilmot Street</p> <p>Department / Division: Public Works Department / Capital Projects Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input checked="" type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>																																																																						
<p>Project Description: This project will provide street improvements, including sidewalk, curb, gutter, asphalt concrete pavement, and striping, to a street segment that is currently undeveloped. It is anticipated that the City will be also seeking right of way offers of dedication.</p> <p>Justification or Significance of Improvement: The purpose of this project is to improve segments of roadway where full-width street improvements do not currently exist.</p> <p>Estimated Maintenance Costs: Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.</p>																																																																								
<p>Project Location Map:</p>																																																																								
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		FY 21/22 - FY 22/23 Budget																																																																						
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Unfunded UNF						528,700	528,700																																																																	
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CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Brodiaea Avenue / Redlands Boulevard to Menwin Street</p> <p>Department / Division: Public Works Department / Capital Projects Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> Deleted</p> <p><input type="checkbox"/> In Progress <input type="checkbox"/> On Hold</p> <p><input type="checkbox"/> Completed</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr)</p> <p><input type="checkbox"/> Necessary (Start within 1 to 3 yrs)</p> <p><input checked="" type="checkbox"/> Desirable (Start within 3 to 5 yrs)</p> <p><input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>																																										
<p>Project Description:</p> <p>This project will provide street improvements, including sidewalk, curb, gutter, asphalt concrete pavement, and striping, to a street segment that is currently undeveloped. It is anticipated that the City will be also seeking right of way offers of dedication.</p> <p>Justification or Significance of Improvement:</p> <p>The purpose of this project is to improve segments of roadway where full-width street improvements do not currently exist.</p> <p>Estimated Maintenance Costs:</p> <p>Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.</p>																																												
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	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total																																						
PROJECT PHASE																																												
Prelim. Eng. / Environ. Design					6,100	6,100																																						
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PROJECT TOTAL	0	0	0	0	528,700	528,700																																						
<p>FUNDING SOURCE</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:30%;"></th> <th style="width:10%;">New Request FY 2021/2022</th> <th style="width:10%;">New Request FY 2022/2023</th> <th style="width:10%;">FY 2023/2024</th> <th style="width:10%;">FY 2024/2025</th> <th style="width:10%;">FY 2025/2026 and Beyond</th> <th style="width:10%;">Total</th> </tr> </thead> <tbody> <tr> <td>Unfunded UNF</td> <td></td> <td></td> <td></td> <td></td> <td>528,700</td> <td>528,700</td> </tr> <tr> <td>REVENUE TOTAL</td> <td align="right">0</td> <td align="right">0</td> <td align="right">0</td> <td align="right">0</td> <td align="right">528,700</td> <td align="right">528,700</td> </tr> </tbody> </table>				New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total	Unfunded UNF					528,700	528,700	REVENUE TOTAL	0	0	0	0	528,700	528,700																					
	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total																																						
Unfunded UNF					528,700	528,700																																						
REVENUE TOTAL	0	0	0	0	528,700	528,700																																						

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Brodiaea Avenue / Wilmot Street to Redlands Boulevard

Department / Division: Public Works Department / Capital Projects Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:

Council District(s):
 District 1
 District 2
 District 3
 District 4

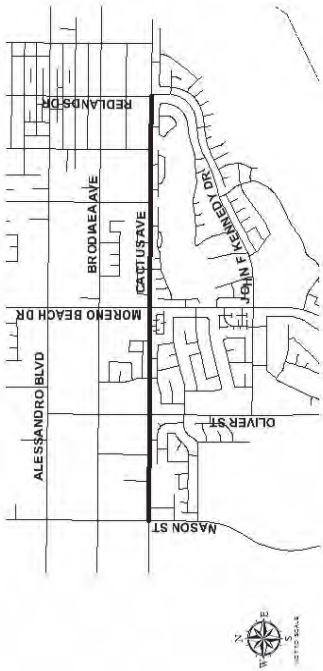
Project Description:
This project will provide street improvements, including sidewalk, curb, gutter, asphalt concrete pavement, and striping, to a street segment that is currently undeveloped.

Justification or Significance of Improvement:
The purpose of this project is to improve segments of roadway where full-width street improvements do not currently exist.

Estimated Maintenance Costs:
Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						6,100 54,700 394,900 12,200
PROJECT TOTAL	0	0	0	0	0	467,900
FUNDING SOURCE Unfunded UNF						
						467,900
REVENUE TOTAL	0	0	0	0	0	467,900

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Cactus Avenue / Nason Street to Redlands Boulevard		Project Status: <input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold		Project Priority in CIP Category: <input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)		
Department / Division: Public Works Department / Capital Projects Division		Project Location Map: 				
Project Description: This project will provide street improvements, including sidewalk, curb, gutter, asphalt concrete pavement, and striping, to a street segment that is currently undeveloped.		Council District(s): <input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4				
Justification or Significance of Improvement: The purpose of this project is to improve segments of roadway where full-width street improvements do not currently exist. This project is needed to provide widening in the corridor to accommodate traffic growth.						
Estimated Maintenance Costs: Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.						
PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other		New Request FY 2021/2022 New Request FY 2022/2023				
PROJECT TOTAL	0	0	0	0	9,050,500	9,050,500
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
DIF Arterial Streets (2901) 3301.UNF					9,050,500	9,050,500
REVENUE TOTAL	0	0	0	0	9,050,500	9,050,500

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Citywide Sidewalk Installation		Project Status: <input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold		Project Priority in CIP Category: <input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input checked="" type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)			
Department / Division: Public Works Department / Capital Projects Division		Project Location Map:					
Project Description: This project will install missing sidewalks and ramps citywide where necessary to complete contiguous sidewalk networks, particularly along routes travelled by students between home and school. The sidewalks may be permanent (concrete) or temporary (asphalt), as determined on a case by case basis. Justification or Significance of Improvement: The purpose of this project is to install missing sidewalks and access ramps to meet ADA compliance and provide pedestrian routes connecting residential to schools and other destinations. Estimated Maintenance Costs: Sidewalk maintenance costs over a 50 year period are estimated to average approximately \$5,400 per 6 foot wide sidewalk mile per year. Currently no new funding source has been identified to fund these maintenance costs. CITYWIDE		Council District(s): <input checked="" type="checkbox"/> District 1 <input checked="" type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4					
		FY 21/22 - FY 22/23 Budget					
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other						182,300 729,000	182,300 729,000
PROJECT TOTAL	0	0	0	0	0	911,300	911,300
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Unfunded UNF						911,300	911,300
REVENUE TOTAL	0	0	0	0	0	911,300	911,300

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Cottonwood Avenue / Old 215 Frontage Road to World Logistics Center Parkway

Department / Division: Public Works Department / Capital Projects Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:

Project Description:
 This project will provide street improvements that include sidewalk, curb, gutter, median, asphalt concrete pavement, and striping.

Justification or Significance of Improvement:
 The purpose of this project is to improve segments of roadway where full-width street improvements do not currently exist.

Estimated Maintenance Costs:
 Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.

Council District(s):
 District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						1,811,000 4,527,000 5,467,500 19,328,900
PROJECT TOTAL	0	0	0	0	0	31,134,400
FUNDING SOURCE DIF Arterial Streets (2901) 3301.UNF						
REVENUE TOTAL	0	0	0	0	0	31,134,400

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Davis Street Roadway and Sidewalk Improvements / Ironwood Avenue to Manzanita Avenue</p>		<p>Project Status:</p> <input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold		<p>Project Priority in CIP Category:</p> <input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input checked="" type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)			
<p>Department / Division: Public Works Department / Capital Projects Division</p>		<p>Project Location Map:</p>					
<p>Project Description: This project will reconstruct sidewalks, access ramps, driveway approaches at various locations along both sides of Davis Street from Ironwood Avenue to Manzanita Avenue to upgrade these facilities to current ADA standards. The project will also include the relocations of utilities, fences and block walls, other obstructions along the sidewalks, and required rights of way to accommodate the proposed improvements.</p> <p>Justification or Significance of Improvement: The purpose of this project is to provide upgrades and modifications to existing street improvements.</p> <p>Estimated Maintenance Costs: Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Sidewalk maintenance costs over a 50 year period are estimated to average approximately \$5,400 per 6 foot wide sidewalk mile per year. Currently no new funding source has been identified to fund these maintenance costs.</p>		<p>Council District(s):</p> <input type="checkbox"/> District 1 <input checked="" type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4					
		<p>FY 21/22 - FY 22/23 Budget</p>					
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other						145,800 97,200 729,000	145,800 97,200 729,000
PROJECT TOTAL	0	0	0	0	0	972,000	972,000
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Unfunded UNF						972,000	972,000
REVENUE TOTAL	0	0	0	0	0	972,000	972,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Day Street / Alessandro Boulevard to Old 215 Frontage Road</p> <p>Department / Division: Public Works Department / Capital Projects Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>																					
<p>Project Description: This project will provide street widening improvements to its ultimate configuration as shown on the City's circulation plan.</p> <p>Justification or Significance of Improvement: The project is needed to provide widening in the corridor to accommodate traffic growth.</p> <p>Estimated Maintenance Costs: Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.</p>																							
<p>Project Location Map:</p>																							
<p>Council District(s):</p> <p><input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>																							
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	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total																	
PROJECT PHASE Prelim. Eng. / Environ. Design Right of Way Construction Other					155,000 387,600 464,100 1,737,900	155,000 387,600 464,100 1,737,900																	
PROJECT TOTAL	0	0	0	0	2,744,600	2,744,600																	
<p>FUNDING SOURCE Dif Arterial Streets (2901) 3301.UNF</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:30%;"></th> <th style="width:15%;">New Request FY 2021/2022</th> <th style="width:15%;">New Request FY 2022/2023</th> <th style="width:15%;">FY 2023/2024</th> <th style="width:15%;">FY 2024/2025</th> <th style="width:15%;">FY 2025/2026 and Beyond</th> <th style="width:10%;">Total</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td>2,744,600</td> <td>2,744,600</td> </tr> <tr> <td>REVENUE TOTAL</td> <td align="right">0</td> <td align="right">0</td> <td align="right">0</td> <td align="right">0</td> <td align="right">2,744,600</td> <td align="right">2,744,600</td> </tr> </tbody> </table>				New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total						2,744,600	2,744,600	REVENUE TOTAL	0	0	0	0	2,744,600	2,744,600
	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total																	
					2,744,600	2,744,600																	
REVENUE TOTAL	0	0	0	0	2,744,600	2,744,600																	

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

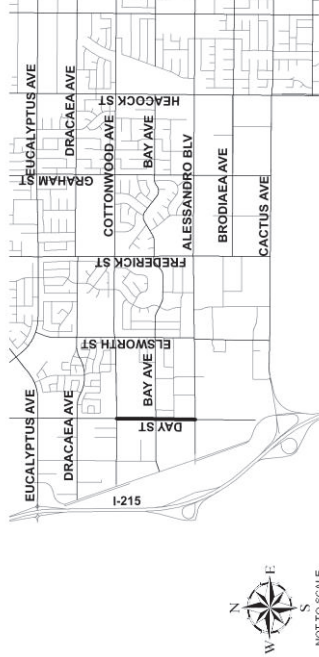
Project Title: Day Street / Cottonwood Avenue to Alessandro Boulevard

Department / Division: Public Works Department / Capital Projects Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:



Project Description:
 This project will provide street widening improvements to its ultimate configuration as shown on the City's circulation plan.

Justification or Significance of Improvement:

The project is needed to provide widening in the corridor to accommodate traffic growth. The ultimate widening will occur as part of new development frontage improvements.

Estimated Maintenance Costs:

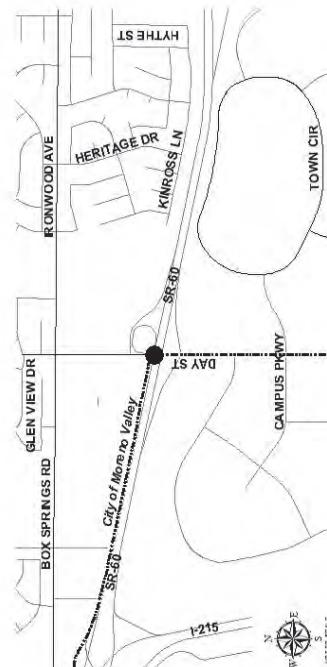
Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.

Council District(s):

District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						51,600 193,700 545,500 1,316,800
PROJECT TOTAL	0	0	0	0	0	2,107,600
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2022/2023				Total
Dif Arterial Streets (2901) 3301.UNF						2,107,600
REVENUE TOTAL	0	0	0	0	0	2,107,600

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Day Street / SR-60 Interchange		Project Status: <input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold		Project Priority in CIP Category: <input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input checked="" type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)			
Department / Division: Public Works Department / Capital Projects Division		Project Location Map: 					
Project Description: This project will involve design and construction of a new SR-60 freeway westbound on-ramp on the west side of Day Street. It includes a WB auxiliary lane, HOV bypass lanes on both WB on-ramps, bridge widening for the WB loop on-ramp HOV bypass lane, and associated walls and traffic channelization devices. The project includes constructing the missing sidewalk gap along the west side of Day Street at an estimated cost of \$1,000,000 for construction.							
Justification or Significance of Improvement: The existing interchange will require modification in order to meet projected traffic demand.							
Estimated Maintenance Costs: Bridge surface and street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs. Caltrans will fund maintenance of the ramps, freeway, and structures.							
		Council District(s): <input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4					
		FY 21/22 - FY 22/23 Budget					
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design				60,800		182,300	243,100
Right of Way				243,000		729,000	972,000
Construction				91,100		273,400	364,500
Other				1,215,000		9,112,500	10,327,500
PROJECT TOTAL	0	0	0	1,609,900	0	10,297,200	11,907,100
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Unfunded UNF				1,609,900		10,297,200	11,907,100
REVENUE TOTAL	0	0	0	1,609,900	0	10,297,200	11,907,100

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Day Street Improvements / SR-60 to Ironwood Avenue</p> <p>Department / Division: Public Works Department / Capital Projects Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>																																										
<p>Project Location Map:</p>																																												
<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input checked="" type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>																																												
<p>Project Description:</p> <p>This project will construct improvements on Day Street and provide signalized access to the existing Canyon Springs commercial center on the west side of Day Street, as well as a future commercial center on the east side of Day Street. The City was working with Caltrans to relinquish a portion of right of way along Day Street. Caltrans was not in favor of the action in 2014. Relinquishment of the Caltrans right of way to the City along Day Street would have allowed the City to modify the street.</p> <p>Justification or Significance of Improvement:</p> <p>Improvements would provide for enhanced accessibility to the Canyon Springs shopping center. Viable options for access should be considered at the time the project becomes a priority.</p> <p>Estimated Maintenance Costs:</p> <p>Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.</p>																																												
<p>FY 21/22 - FY 22/23 Budget</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:30%;"></th> <th style="width:10%;">New Request FY 2021/2022</th> <th style="width:10%;">New Request FY 2022/2023</th> <th style="width:10%;">FY 2023/2024</th> <th style="width:10%;">FY 2024/2025</th> <th style="width:10%;">FY 2025/2026 and Beyond</th> <th style="width:10%;">Total</th> </tr> </thead> <tbody> <tr> <td>PROJECT PHASE</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Prelim. Eng. / Environ. Design</td> <td></td> <td></td> <td></td> <td></td> <td>60,800</td> <td>60,800</td> </tr> <tr> <td>Right of Way Construction</td> <td></td> <td></td> <td></td> <td></td> <td>1,154,300</td> <td>1,154,300</td> </tr> <tr> <td>Other</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>PROJECT TOTAL</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">1,215,100</td> <td style="text-align: right;">1,215,100</td> </tr> </tbody> </table>				New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total	PROJECT PHASE							Prelim. Eng. / Environ. Design					60,800	60,800	Right of Way Construction					1,154,300	1,154,300	Other							PROJECT TOTAL	0	0	0	0	1,215,100	1,215,100
	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total																																						
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Prelim. Eng. / Environ. Design					60,800	60,800																																						
Right of Way Construction					1,154,300	1,154,300																																						
Other																																												
PROJECT TOTAL	0	0	0	0	1,215,100	1,215,100																																						
<p>FUNDING SOURCE</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:30%;"></th> <th style="width:10%;">New Request FY 2021/2022</th> <th style="width:10%;">New Request FY 2022/2023</th> <th style="width:10%;">FY 2023/2024</th> <th style="width:10%;">FY 2024/2025</th> <th style="width:10%;">FY 2025/2026 and Beyond</th> <th style="width:10%;">Total</th> </tr> </thead> <tbody> <tr> <td>Unfunded UNF</td> <td></td> <td></td> <td></td> <td></td> <td>1,215,100</td> <td>1,215,100</td> </tr> <tr> <td>REVENUE TOTAL</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">1,215,100</td> <td style="text-align: right;">1,215,100</td> </tr> </tbody> </table>				New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total	Unfunded UNF					1,215,100	1,215,100	REVENUE TOTAL	0	0	0	0	1,215,100	1,215,100																					
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Unfunded UNF					1,215,100	1,215,100																																						
REVENUE TOTAL	0	0	0	0	1,215,100	1,215,100																																						

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

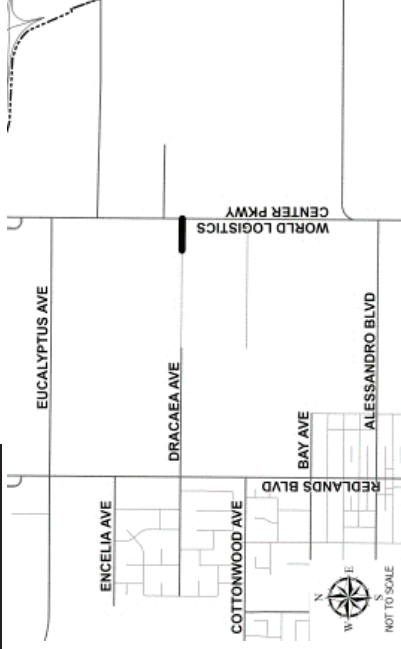
Project Title: Dracaea Avenue / World Logistics Center Parkway to 650 Ft West

Department / Division: Public Works Department / Capital Projects Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:



Project Description:
 This project will provide street improvements that include sidewalk, curb, gutter, median, asphalt concrete pavement, and striping.

Justification or Significance of Improvement:
 The purpose of this project is to improve segments of roadway where full-width street improvements do not currently exist.

Estimated Maintenance Costs:
 Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.

Council District(s):

District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						70,000 95,000 524,900
PROJECT TOTAL	0	0	0	0	689,900	689,900
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	Total
Unfunded UNF					689,900	689,900
REVENUE TOTAL	0	0	0	0	689,900	689,900


CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Dracaea Avenue / Nason Street to 700 Ft East of Nason Street

Department / Division: Public Works Department / Capital Projects Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:


Project Description:
This project will provide street improvements that include sidewalk, curb, gutter, median, asphalt concrete pavement, and striping.

Justification or Significance of Improvement:
The purpose of this project is to improve segments of roadway where full-width street improvements do not currently exist.

Estimated Maintenance Costs:
Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.

Council District(s):
 District 1
 District 2
 District 3
 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total	
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond		
Prelim. Eng. / Environ. Design Right of Way Construction Other						92,300 125,900 233,200 695,600	
PROJECT TOTAL	0	0	0	0	0	1,147,000	
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				FY 2025/2026 and Beyond	Total
Unfunded UNF						1,147,000	1,147,000
REVENUE TOTAL	0	0	0	0	0	1,147,000	1,147,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Dracaea Avenue / Old 215 Frontage Road to Day Street

Department / Division: Public Works Department / Capital Projects Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:

Council District(s):
 District 1
 District 2
 District 3
 District 4

Project Description:
This project will provide street improvements that include sidewalk, curb, gutter, median, asphalt concrete pavement, and striping. This segment of Dracaea Avenue is within the Community Development Block Grant (CDBG) target area and is eligible for CDBG funding.

Justification or Significance of Improvement:
The purpose of this project is to improve segments of roadway where full-width street improvements do not currently exist.

Estimated Maintenance Costs:
Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget					Total	
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond		
Prelim. Eng. / Environ. Design						221,500	221,500	
Right of Way						300,700	300,700	
Construction						317,000	317,000	
Other						1,661,500	1,661,500	
PROJECT TOTAL	0	0	0	0	0	2,500,700	2,500,700	
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024					FY 2025/2026 and Beyond	Total
Unfunded UNF							2,500,700	
REVENUE TOTAL	0	0	0	0	0	2,500,700	2,500,700	

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Dracaea Avenue / Redlands Boulevard to 1,320 Ft East of Redlands Boulevard

Department / Division: Public Works Department / Capital Projects Division

Project Status:
 New
 In Progress
 Deleted
 Completed
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:

Project Description:
 This project will provide street improvements that include sidewalk, curb, gutter, median, asphalt concrete pavement, and striping.

Justification or Significance of Improvement:
 The purpose of this project is to improve segments of roadway where full-width street improvements do not currently exist.

Estimated Maintenance Costs:
 Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.

Council District(s):
 District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design					142,000	142,000
Right of Way Construction					192,700	192,700
Other					242,400	242,400
PROJECT TOTAL	0	0	0	0	1,642,700	1,642,700
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				Total
Unfunded UNF					1,642,700	1,642,700
REVENUE TOTAL	0	0	0	0	1,642,700	1,642,700

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Dracaea Avenue / World Logistics Center Parkway to 1,500 Ft East

Department / Division: Public Works Department / Capital Projects Division

Project Status:
 New
 Deleted
 In Progress
 On Hold
 Completed

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Description:

This project will provide street improvements that include sidewalk, curb, gutter, median, asphalt concrete pavement, and striping.

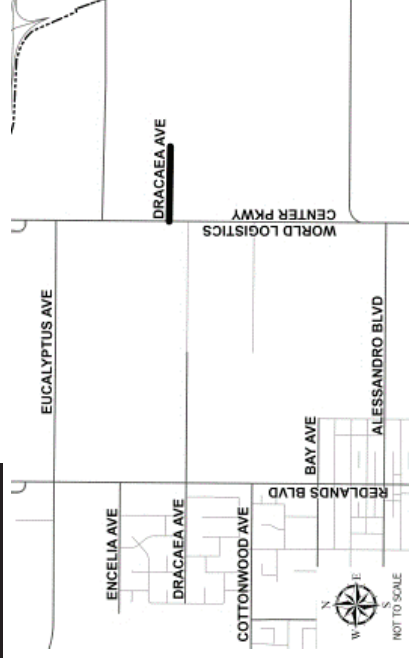
Justification or Significance of Improvement:

The purpose of this project is to improve segments of roadway where full-width street improvements do not currently exist.

Estimated Maintenance Costs:

Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.

Project Location Map:



Council District(s):
 District 1 District 2 District 3 District 4

PROJECT PHASE Prelim. Eng. / Environ. Design Right of Way Construction Other	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
	0			0	1,590,000	1,590,000
FUNDING SOURCE Unfunded UNF					1,590,000	1,590,000
REVENUE TOTAL	0	0	0	0	1,590,000	1,590,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Elder Avenue / Morrison Street to Nason Street</p> <p>Department / Division: Public Works Department / Capital Projects Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>
<p>Project Location Map:</p>		
<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input checked="" type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>		

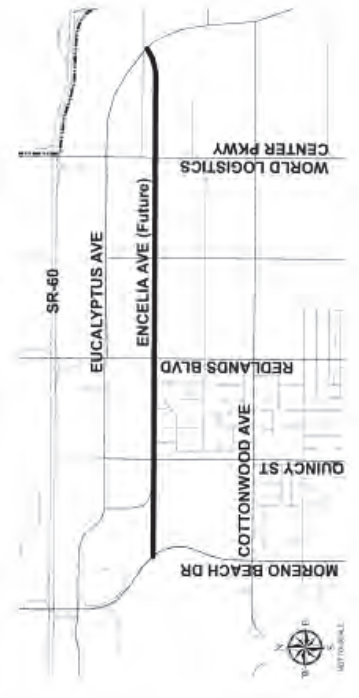
Project Description:
This project will provide street improvements that include sidewalk, curb, gutter, median, asphalt concrete pavement, and striping.

Justification or Significance of Improvement:
The purpose of this project is to improve segments of roadway where full-width street improvements do not currently exist.

Estimated Maintenance Costs:
Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						181,600 246,600 363,500 1,363,200
PROJECT TOTAL	0	0	0	0	0	2,154,900
FUNDING SOURCE	Budget FY 2020/2021					Total
Unfunded UNF						2,154,900
REVENUE TOTAL	0	0	0	0	0	2,154,900

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Encilia Avenue / Moreno Beach Drive to Eucalyptus Avenue</p> <p>Department / Division: Public Works Department / Capital Projects Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>
<p>Project Location Map:</p> 		
<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>		

Project Description:
This project will provide street improvements that include sidewalk, curb, gutter, median, asphalt concrete pavement, and striping.

Justification or Significance of Improvement:
The project is needed to provide widening in the corridor to accommodate traffic growth.

Estimated Maintenance Costs:
Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total	
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond		
Prelim. Eng. / Environ. Design Right of Way Construction Other						452,000 645,800 3,142,600 14,450,000 18,690,400	
PROJECT TOTAL	0	0	0	0	0	18,690,400	
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				FY 2025/2026 and Beyond	Total
DIF Arterial Streets (2901) 3301.UNF						18,690,400	18,690,400
REVENUE TOTAL	0	0	0	0	0	18,690,400	18,690,400

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Eucalyptus Avenue / I-215 to Towngate Boulevard</p> <p>Department / Division: Public Works Department / Capital Projects Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>																																																
<p>Project Location Map:</p>																																																		
<p>Council District(s):</p> <p><input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>																																																		
<p>Project Description: This project will provide street improvements that include sidewalk, curb, gutter, median, asphalt concrete pavement, and striping on Eucalyptus Avenue between I-215 to Towngate Boulevard and Heacock Street to Kitching Street to Morrison Street.</p> <p>Justification or Significance of Improvement: The purpose of this project is to improve segments of roadway where full-width street improvements do not currently exist.</p> <p>Estimated Maintenance Costs: Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.</p>																																																		
<p>FY 21/22 - FY 22/23 Budget</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:30%;">PROJECT PHASE</th> <th style="width:10%;">Budget FY 2020/2021</th> <th style="width:10%;">New Request FY 2021/2022</th> <th style="width:10%;">New Request FY 2022/2023</th> <th style="width:10%;">FY 2023/2024</th> <th style="width:10%;">FY 2024/2025</th> <th style="width:10%;">FY 2025/2026 and Beyond</th> <th style="width:10%;">Total</th> </tr> </thead> <tbody> <tr> <td>Prelim. Eng. / Environ. Design</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>121,500</td> <td>121,500</td> </tr> <tr> <td>Right of Way Construction</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>364,500</td> <td>364,500</td> </tr> <tr> <td>Other</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>3,037,500</td> <td>3,037,500</td> </tr> <tr> <td>PROJECT TOTAL</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">3,888,000</td> <td style="text-align: right;">3,888,000</td> </tr> </tbody> </table>			PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total	Prelim. Eng. / Environ. Design						121,500	121,500	Right of Way Construction						364,500	364,500	Other						3,037,500	3,037,500	PROJECT TOTAL	0	0	0	0	0	3,888,000	3,888,000								
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total																																											
Prelim. Eng. / Environ. Design						121,500	121,500																																											
Right of Way Construction						364,500	364,500																																											
Other						3,037,500	3,037,500																																											
PROJECT TOTAL	0	0	0	0	0	3,888,000	3,888,000																																											
<p>FUNDING SOURCE</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:30%;">PROJECT PHASE</th> <th style="width:10%;">Budget FY 2020/2021</th> <th style="width:10%;">New Request FY 2021/2022</th> <th style="width:10%;">New Request FY 2022/2023</th> <th style="width:10%;">FY 2023/2024</th> <th style="width:10%;">FY 2024/2025</th> <th style="width:10%;">FY 2025/2026 and Beyond</th> <th style="width:10%;">Total</th> </tr> </thead> <tbody> <tr> <td>TUMF Cap Proj (3003)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>1,397,000</td> <td>1,397,000</td> </tr> <tr> <td>3003.UNF</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>2,491,000</td> <td>2,491,000</td> </tr> <tr> <td>DIF Arterial Streets (2901)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>3301.UNF</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>REVENUE TOTAL</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">3,888,000</td> <td style="text-align: right;">3,888,000</td> </tr> </tbody> </table>			PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total	TUMF Cap Proj (3003)						1,397,000	1,397,000	3003.UNF						2,491,000	2,491,000	DIF Arterial Streets (2901)								3301.UNF								REVENUE TOTAL	0	0	0	0	0	3,888,000	3,888,000
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total																																											
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REVENUE TOTAL	0	0	0	0	0	3,888,000	3,888,000																																											

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Eucalyptus Avenue / Heacock Street to Morrison Street</p> <p>Department / Division: Public Works Department / Capital Projects Division</p> <p>Project Description: This project will provide street improvements that include sidewalk, curb, gutter, median, asphalt concrete pavement, and striping. This segment of Eucalyptus Avenue is within the Community Development Block Grant (CDBG) target area and is eligible for CDBG funding.</p> <p>Justification or Significance of Improvement: The purpose of this project is to improve a segment of Eucalyptus Avenue along the south side of the roadway, where full-width street and sidewalk improvements do not currently exist.</p> <p>Estimated Maintenance Costs: Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p> <p>Project Location Map:</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p> <p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>																																														
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		FY 21/22 - FY 22/23 Budget																																														
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REVENUE TOTAL	0	0	0	0	0	1,457,900	1,457,900																																									

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Eucalyptus Avenue / Redlands Boulevard to Theodore Street</p> <p>Department / Division: Public Works Department / Capital Projects Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>
<p>Project Location Map:</p>		
<p>Justification or Significance of Improvement: These improvements will improve the level of service at both intersections, reduce truck traffic congestion on Eucalyptus Avenue, and also reduce flooding by improving storm drain facilities in the area.</p> <p>Estimated Maintenance Costs: Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.</p>		
<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>		

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						12,200
PROJECT TOTAL	0	0	0	0	2,205,300	2,205,300
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	Total
DIF Arterial Streets (2901) 3301.UNF Developer Contribution UNF						607,500
						1,597,800
						0
REVENUE TOTAL	0	0	0	0	2,205,300	2,205,300

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Eucalyptus Avenue (Formerly Fir Avenue) / Petit Street to Redlands Boulevard

Department / Division: Public Works Department / Capital Projects Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:



Council District(s):
 District 1 District 2 District 3 District 4

Project Description:
 This project will provide street improvements that include sidewalk, curb, gutter, median, asphalt concrete pavement, and striping.

Justification or Significance of Improvement:

The purpose of this project is to improve segments of roadway where full-width street improvements do not currently exist.

Estimated Maintenance Costs:

Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.

PROJECT PHASE Prelim. Eng. / Environ. Design Right of Way Construction Other	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
PROJECT TOTAL	0	0	0	0	5,160,100	5,160,100
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				Total
TUMF Cap Proj (3003)						
3003.UNF						
DIF Arterial Streets (2901)						
3301.UNF						
REVENUE TOTAL	0	0	0	0	5,160,100	5,160,100

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Fir Avenue / Tamara Drive to Kitching Street and Tamara Drive (East Side)</p> <p>Department / Division: Public Works Department / Capital Projects Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>
<p>Project Location Map:</p>		
<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>		

Project Description:
This project will provide street improvements that include sidewalk, curb, gutter, median, asphalt concrete pavement, and striping along Fir Avenue and to close a gap on the east side of Tamara Drive from Fir Avenue to the South.

Justification or Significance of Improvement:
The purpose of this project is to improve segments of roadway where full width street improvements do not currently exist.

Estimated Maintenance Costs:
Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						37,100 50,400 12,200 303,800
PROJECT TOTAL	0	0	0	0	403,500	403,500
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	Total
DIF Arterial Streets (2901) 3301.UNF					403,500	403,500
REVENUE TOTAL	0	0	0	0	403,500	403,500

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Frederick Street Permanent Median / Calle San Juan de Los Lagos to Alessandro Boulevard</p> <p>Department / Division: Public Works Department / Capital Projects Division</p> <p>Project Description: This project will involve replacing a temporary glue down curb median with a permanent median on Frederick Street from Calle San Juan de Los Lagos to Alessandro Boulevard. This project was deferred indefinitely by the City Council during their June 23, 2009 meeting. This project was previously funded under DIF Arterial Streets.</p> <p>Justification or Significance of Improvement: The median will enhance safety and channelize turn movements.</p> <p>Estimated Maintenance Costs: Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p> <p>Project Location Map:</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p> <p>Council District(s):</p> <p><input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>
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PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total	
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond		
Prelim. Eng. / Environ. Design Right of Way Construction Other						6,100 24,300 486,000	
PROJECT TOTAL	0	0	0	0	516,400	516,400	
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				FY 2025/2026 and Beyond	Total
DIF Arterial Streets (2901) 3301.UNF						516,400	516,400
REVENUE TOTAL	0	0	0	0	516,400	516,400	

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Gentian Avenue / Heacock Street to Perris Boulevard</p> <p>Department / Division: Public Works Department / Capital Projects Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> Deleted <input type="checkbox"/> In Progress <input type="checkbox"/> On Hold <input type="checkbox"/> Completed</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>																																																				
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CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Heacock Street / Cactus Avenue Commercial Vehicle Improvements</p> <p>Department / Division: Public Works Department / Capital Projects Division</p> <p>Project Description: This project will increase the curb return radius at the southwest corner of Heacock Street and Cactus Avenue to improve truck operations, thereby increasing intersection capacity. Schedule: TBD</p> <p>Justification or Significance of Improvement: The project will increase the capacity of this heavily traveled intersection, thereby reducing delay for cars and trucks.</p> <p>Estimated Maintenance Costs: The project will add a nominal amount of sidewalk and pavement to the maintained street system.</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> Deleted <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p>Project Location Map:</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input checked="" type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>																																										
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	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total																																						
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REVENUE TOTAL	0	0	250,000	0	10,000	260,000																																						

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Heacock Street / Reche Vista Drive to Cactus Avenue

Department / Division: Public Works Department / Capital Projects Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:

Project Description:
 This project will provide street improvements such as sidewalk, curb, gutter, asphalt concrete pavement, and striping along Heacock Street, between Reche Vista Drive and Cactus Avenue where missing improvements exist. The gap sections shown on the location map, between Atwood Avenue and Myers Avenue, and between Gregory Lane to 680' south, is covered on separate project sheets.

Justification or Significance of Improvement:
 The purpose of this project is to improve segments of roadway where full-width street improvements do not currently exist.

Estimated Maintenance Costs:
 Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.

Council District(s):
 District 1 District 2 District 3 District 4

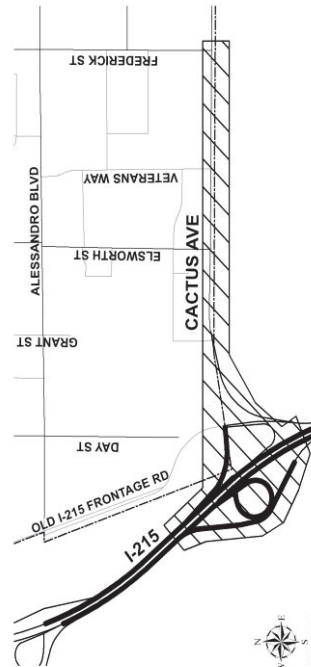
PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						121,500 364,500 607,500 2,430,000 3,523,500
PROJECT TOTAL	0	0	0	0	0	3,523,500

FUNDING SOURCE	Budget FY 2020/2021	FY 2025/2026 and Beyond				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
DIF Arterial Streets (2901) 3301.UNF						3,523,500
REVENUE TOTAL	0	0	0	0	0	3,523,500

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Heacock Street Sidewalk / Atwood Avenue to Myers Avenue</p> <p>Department / Division: Public Works Department / Capital Projects Division</p>	<p>Project Status:</p> <p><input type="checkbox"/> New <input type="checkbox"/> Deleted</p> <p><input type="checkbox"/> In Progress <input checked="" type="checkbox"/> On Hold</p> <p><input type="checkbox"/> Completed</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr)</p> <p><input type="checkbox"/> Necessary (Start within 1 to 3 yrs)</p> <p><input type="checkbox"/> Desirable (Start within 3 to 5 yrs)</p> <p><input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>																														
<p>Project Location Map:</p>																																
<p>Project Description:</p> <p>Phase 1 constructed a temporary asphalt concrete sidewalk which was completed in June 2012 at a cost of \$200,000.</p> <p>Phase 2 (Ultimate Improvements)</p> <p>This project will construct the ultimate street improvements and sidewalk along the east side of Heacock Street between Atwood Avenue and Myers Avenue. The project requires acquisition of right of way located on the east side of Heacock Street. Improvements will include full street widening on the east side that accommodates the General Plan cross section for Heacock Street (widening of the existing two through lanes, striped median, and shoulder), as well as construction of the ultimate sidewalk along this segment.</p> <p>Justification or Significance of Improvement:</p> <p>This project will enhance the traffic conditions and provide a concrete sidewalk and full street width improvements per the City standard for this section of Heacock Street.</p> <p>Estimated Maintenance Costs:</p> <p>Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.</p>																																
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REVENUE TOTAL	0	0	0	0	0	1,822,600	1,822,600																									

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: I-215 / Cactus Avenue Interchange Improvements</p> <p>Department / Division: Public Works Department / Capital Projects Division</p>	<p>Project Status:</p> <p><input type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input checked="" type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input checked="" type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>																																																																																						
<p>Project Location Map:</p> 																																																																																								
<p>Project Description:</p> <p>The project will study alternatives to improve the I-215 / Cactus Avenue on- and off-ramps, eliminating or realigning auxiliary lanes and widening or replacing the over-crossing structure at I-215 / Cactus Avenue. TUMF allocations are dependent upon the availability of funds from the Western Riverside Council of Governments (WRCOG).</p> <p>Project Study Report: Caltrans sign-off July 2009 Project Approval and Environmental Documentation: Subject to available funding Design: Subject to available funding Right of Way: Subject to available funding Construction: Subject to available funding</p> <p>This project was previously funded under TUMF.</p> <p>Justification or Significance of Improvement:</p> <p>The objective of the project is to reduce traffic congestion, enhance access, and improve traffic circulation along Cactus Avenue and to the main gate at March Air Reserve Base (MARB).</p> <p>Estimated Maintenance Costs:</p> <p>Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.</p>																																																																																								
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CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Indian Street / Manzanita Avenue to Superior Avenue</p> <p>Department / Division: Public Works Department / Capital Projects Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>																																							
<p>Project Location Map:</p>																																									
<p>Project Description: This project will provide street improvements that include sidewalk, curb, gutter, median, asphalt concrete pavement, and striping. The SR-60 bridge crossing is listed separately under the "Bridges" category in this CIP.</p> <p>Justification or Significance of Improvement: The project is needed to provide widening in the corridor to accommodate traffic growth.</p> <p>Estimated Maintenance Costs: Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.</p>																																									
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Other					4,562,300	4,562,300																																			
PROJECT TOTAL	0	0	0	0	28,629,000	28,629,000																																			
<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">FUNDING SOURCE</th> <th rowspan="2">Budget FY 2020/2021</th> <th colspan="4">FY 2023/2024</th> <th rowspan="2">Total</th> </tr> <tr> <th>New Request FY 2021/2022</th> <th>New Request FY 2022/2023</th> <th>FY 2023/2024</th> <th>FY 2024/2025 and Beyond</th> </tr> </thead> <tbody> <tr> <td>DIF Arterial Streets (2901) 3301.UNF</td> <td></td> <td></td> <td></td> <td></td> <td>28,629,000</td> <td>28,629,000</td> </tr> <tr> <td>REVENUE TOTAL</td> <td align="right">0</td> <td align="right">0</td> <td align="right">0</td> <td align="right">0</td> <td align="right">28,629,000</td> <td align="right">28,629,000</td> </tr> </tbody> </table>			FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				Total	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	DIF Arterial Streets (2901) 3301.UNF					28,629,000	28,629,000	REVENUE TOTAL	0	0	0	0	28,629,000	28,629,000														
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				Total																																			
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond																																				
DIF Arterial Streets (2901) 3301.UNF					28,629,000	28,629,000																																			
REVENUE TOTAL	0	0	0	0	28,629,000	28,629,000																																			

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Indian Street / San Michele Road to Southerly City Limits

Department / Division: Public Works Department / Capital Projects Division

Project Status:
 New
 Deleted
 In Progress
 On Hold
 Completed

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:



Council District(s):
 District 1 District 2 District 3 District 4

Project Description:
 This project will provide street improvements that include sidewalk, curb, gutter, median, asphalt concrete pavement, and striping.

Justification or Significance of Improvement:
 The project is needed to provide widening in the corridor to accommodate traffic growth.

Estimated Maintenance Costs:
 Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						155,000 322,800 468,700 4,076,200
PROJECT TOTAL	0	0	0	0	5,022,700	5,022,700
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	Total
TUMF Cap Proj (3003) 3003.UNF DIF Arterial Streets (2901) 3301.UNF						3,042,700 1,980,000
REVENUE TOTAL	0	0	0	0	5,022,700	5,022,700

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

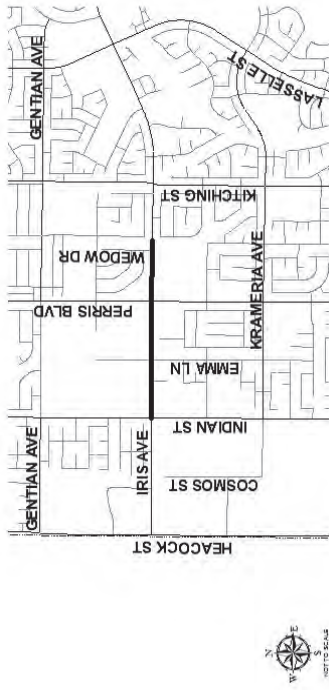
Project Title: Iris Avenue / Indian Street to 200 Ft East of Wedow Drive

Department / Division: Public Works Department / Capital Projects Division

Project Status:
 New
 Deleted
 In Progress
 On Hold
 Completed

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:



Council District(s):
 District 1 District 2 District 3 District 4

Project Description:
 This project will provide street improvements that include sidewalk, curb, gutter, median, asphalt concrete pavement, and striping.

Justification or Significance of Improvement:
 The purpose of this project is to improve segments of roadway where full-width street improvements do not currently exist.

Estimated Maintenance Costs:
 Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						317,100 792,800 854,100 3,488,900 3,488,900
PROJECT TOTAL	0	0	0	0	0	5,452,900
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				FY 2025/2026 and Beyond
DIF Arterial Streets (2901) 3301.UNF						5,452,900
REVENUE TOTAL	0	0	0	0	0	5,452,900

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Ironwood Avenue / Nason Street to Redlands Boulevard</p> <p>Department / Division: Public Works Department / Capital Projects Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>					
<p>Project Location Map:</p>							
<p>Project Description: This project will provide street improvements that include sidewalk, curb, gutter, median, asphalt concrete pavement, and striping.</p> <p>Justification or Significance of Improvement: The project is needed to provide widening in the corridor to accommodate traffic growth.</p> <p>Estimated Maintenance Costs: Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.</p>							
<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input checked="" type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>							
<p>FY 21/22 - FY 22/23 Budget</p>							
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other						258,200 516,600 1,265,700 7,754,900	258,200 516,600 1,265,700 7,754,900
PROJECT TOTAL	0	0	0	0	0	9,795,400	9,795,400
<p>FUNDING SOURCE</p>							
TUMF Cap Proj (3003) 3003.UNF DIF Arterial Streets (2901) 3301.UNF	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
						6,351,500 3,443,900	6,351,500 3,443,900
REVENUE TOTAL	0	0	0	0	0	9,795,400	9,795,400

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Ironwood Avenue / Perris Boulevard to Nason Street</p> <p>Department / Division: Public Works Department / Capital Projects Division</p>	<p>Project Status:</p> <p><input type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Deleted <input checked="" type="checkbox"/> On Hold <input type="checkbox"/> Completed</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input checked="" type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>	<p>Project Location Map:</p>																																										
<p>Project Description:</p> <p>This project will widen Ironwood Avenue from Perris Boulevard to Nason Street from two lanes to four lanes with a two-way turn lane, bike lanes, and sidewalks west of Vista de Cerros, and two lanes with two-way left-turn lane, bike lanes, and sidewalks east of Vista de Cerros. The City Council approved the Mitigated Negative Declaration for the project in May 2011, and WRCOG has reimbursed the City for the PA&ED phase. Final design and construction will proceed based on available funding. Staff has identified two potential projects that could be implemented if appropriate funding were made available. The first is widening at the northwest corner of Ironwood Avenue and Kitching Street to remove the bottleneck at this point and provide four travel lanes between Perris Boulevard and Lasselle Street at a cost of \$800,000. The second is widening between Dalehurst Road and Helga Lane, with transitions on each end, to provide a turning lane, shoulders, and sidewalk at a cost of \$990,000. Either project would require 18-24 months to allow for final design, utility coordination, and/or right of way acquisition as appropriate.</p> <p>Preliminary Engineering / Environmental: Completed June 2011; Right of Way and Design: Subject to available funding</p> <p>Justification or Significance of Improvement:</p> <p>Ironwood Avenue provides a local east-west traffic link within the City. The proposed improvements will enhance roadway capacity and improve safety.</p> <p>Estimated Maintenance Costs:</p> <p>Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.</p>																																													
<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input checked="" type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>																																													
<p>FY 21/22 - FY 22/23 Budget</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:10%;"></th> <th style="width:15%;">New Request FY 2021/2022</th> <th style="width:15%;">New Request FY 2022/2023</th> <th style="width:15%;">FY 2023/2024</th> <th style="width:15%;">FY 2024/2025</th> <th style="width:15%;">FY 2025/2026 and Beyond</th> <th style="width:10%;">Total</th> </tr> </thead> <tbody> <tr> <td>PROJECT PHASE</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Prelim. Eng. / Environ. Design</td> <td></td> <td></td> <td>2,187,000</td> <td></td> <td></td> <td>2,187,000</td> </tr> <tr> <td>Right of Way Construction</td> <td></td> <td></td> <td>1,093,500</td> <td>10,935,000</td> <td></td> <td>1,093,500</td> </tr> <tr> <td>Other</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>PROJECT TOTAL</td> <td align="right">0</td> <td align="right">0</td> <td align="right">3,280,500</td> <td align="right">10,935,000</td> <td align="right">0</td> <td align="right">14,215,500</td> </tr> </tbody> </table>					New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total	PROJECT PHASE							Prelim. Eng. / Environ. Design			2,187,000			2,187,000	Right of Way Construction			1,093,500	10,935,000		1,093,500	Other							PROJECT TOTAL	0	0	3,280,500	10,935,000	0	14,215,500
	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total																																							
PROJECT PHASE																																													
Prelim. Eng. / Environ. Design			2,187,000			2,187,000																																							
Right of Way Construction			1,093,500	10,935,000		1,093,500																																							
Other																																													
PROJECT TOTAL	0	0	3,280,500	10,935,000	0	14,215,500																																							
<p>FUNDING SOURCE</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:10%;"></th> <th style="width:15%;">New Request FY 2021/2022</th> <th style="width:15%;">New Request FY 2022/2023</th> <th style="width:15%;">FY 2023/2024</th> <th style="width:15%;">FY 2024/2025</th> <th style="width:15%;">FY 2025/2026 and Beyond</th> <th style="width:10%;">Total</th> </tr> </thead> <tbody> <tr> <td>TUMF Cap Proj (3003) 3003.UNF</td> <td></td> <td></td> <td>3,280,500</td> <td>10,935,000</td> <td></td> <td>14,215,500</td> </tr> <tr> <td>REVENUE TOTAL</td> <td align="right">0</td> <td align="right">0</td> <td align="right">3,280,500</td> <td align="right">10,935,000</td> <td align="right">0</td> <td align="right">14,215,500</td> </tr> </tbody> </table>					New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total	TUMF Cap Proj (3003) 3003.UNF			3,280,500	10,935,000		14,215,500	REVENUE TOTAL	0	0	3,280,500	10,935,000	0	14,215,500																					
	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total																																							
TUMF Cap Proj (3003) 3003.UNF			3,280,500	10,935,000		14,215,500																																							
REVENUE TOTAL	0	0	3,280,500	10,935,000	0	14,215,500																																							

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Ironwood Avenue / Redlands Boulevard to Theodore Street</p> <p>Department / Division: Public Works Department / Capital Projects Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>
<p>Project Description: This project will provide street improvements that include sidewalk, curb, gutter, median, asphalt concrete pavement, and striping.</p> <p>Justification or Significance of Improvement: The purpose of this project is to improve segments of roadway where full-width street improvements do not currently exist.</p> <p>Estimated Maintenance Costs: Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.</p>		
<p>Project Location Map:</p>		
<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input checked="" type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>		

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	
Prelim. Eng. / Environ. Design Right of Way Construction Other						193,800 387,500 226,800 3,608,400
PROJECT TOTAL	0	0	0	0	0	4,416,500
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				FY 2025/2026 and Beyond
DIF Arterial Streets (2901) 3301.UNF						4,416,500
REVENUE TOTAL	0	0	0	0	0	4,416,500

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: John F. Kennedy Drive Road Diet from Moreno Beach Drive to Cactus Avenue

Department / Division: Public Works Department / Transportation Engineering Division

Project Status:
 New
 Deleted
 In Progress
 On Hold
 Completed

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:

Justification or Significance of Improvement:
 The project will reduce speeds on this school zone segment.

Estimated Maintenance Costs:
 Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.

Council District(s):
 District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other				15,000 75,000 1,035,000		15,000 75,000 1,035,000
PROJECT TOTAL	0	0	0	1,125,000	0	1,125,000
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	Total
Unfunded UNF				1,125,000		1,125,000
REVENUE TOTAL	0	0	0	1,125,000	0	1,125,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Kitching Street / Cactus Avenue to Gentian Avenue

Department / Division: Public Works Department / Capital Projects Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Location Map:

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Justification or Significance of Improvement:
 This project will mitigate traffic congestion and improve air quality by reducing vehicular travel time and fuel consumption. Construction of the work will result in the ultimate street section along Kitching Street, providing connectivity to Iris Avenue, Cactus Avenue, and Alessandro Boulevard.

Estimated Maintenance Costs:
 Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.

Council District(s):
 District 1 District 2 District 3 District 4

PROJECT PHASE Prelim. Eng. / Environ. Design Right of Way Construction Other	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
PROJECT TOTAL	0	0	0	0	3,444,500	3,444,500
FUNDING SOURCE Unfunded UNF					3,444,500	3,444,500
REVENUE TOTAL	0	0	0	0	3,444,500	3,444,500

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Kitching Street / Gentian Avenue to Southerly City Limits

Department / Division: Public Works Department / Capital Projects Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:



Project Description:
 This project will provide street improvements that include sidewalk, curb, gutter, median, asphalt concrete pavement, striping, and a bus stop at the northeast corner of Kitching Street and Campanilla Way.

Justification or Significance of Improvement:

The purpose of this project is to improve segments of roadway where full-width street improvements do not currently exist.

Estimated Maintenance Costs:

Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.

Council District(s):

District 1 District 2 District 3 District 4

PROJECT PHASE Prelim. Eng. / Environ. Design Right of Way Construction Other	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
	0			0		455,600
						1,063,100
						2,278,100
						8,509,900
PROJECT TOTAL	0			0	12,306,700	12,306,700
FUNDING SOURCE Unfunded UNF						
						12,306,700
REVENUE TOTAL	0			0	12,306,700	12,306,700

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

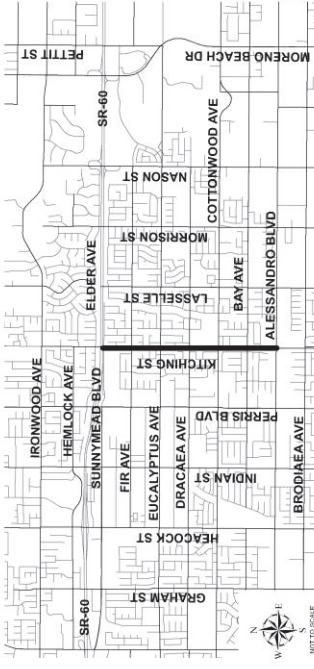
Project Title: Kitching Street / Sunnymead Boulevard to Alessandro Boulevard

Department / Division: Public Works Department / Capital Projects Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:



Project Description:
 This project will provide street improvements that include sidewalk, curb, gutter, median, asphalt concrete pavement, and striping.

Justification or Significance of Improvement:

The purpose of this project is to improve segments of roadway where full-width street improvements do not currently exist.

Estimated Maintenance Costs:

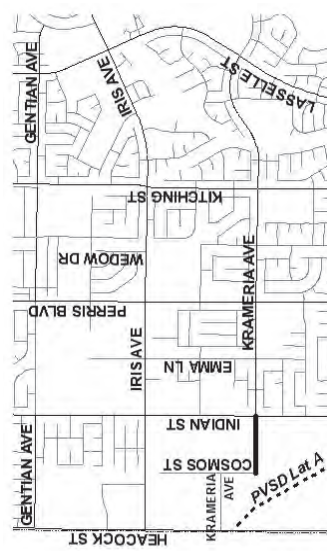
Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.

Council District(s):

District 1 District 2 District 3 District 4

PROJECT PHASE Prelim. Eng. / Environ. Design Right of Way Construction Other	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
PROJECT TOTAL	0	0	0	0	7,365,300	7,365,300
FUNDING SOURCE Unfunded UNF	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	Total
					7,365,300	7,365,300
REVENUE TOTAL	0	0	0	0	7,365,300	7,365,300

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Krameria Avenue / Cosmos Street to Indian Street</p> <p>Department / Division: Public Works Department / Capital Projects Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>														
<p>Project Location Map:</p> 																
<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input checked="" type="checkbox"/> District 4</p>																
<p>Project Description: This project will provide street improvements that include sidewalk, curb, gutter, median, asphalt concrete pavement, striping, and storm drain improvements.</p> <p>Justification or Significance of Improvement: The project is needed to provide widening in the corridor to accommodate traffic growth.</p> <p>Estimated Maintenance Costs: Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.</p>																
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	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total										
	0	0	0	0	2,691,200	2,691,200										
<p>Funding Source</p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:15%;">Unfunded UNF</td> <td style="width:15%;">New Request FY 2021/2022</td> <td style="width:15%;">New Request FY 2022/2023</td> <td style="width:15%;">FY 2023/2024</td> <td style="width:15%;">FY 2024/2025</td> <td style="width:15%;">FY 2025/2026 and Beyond</td> <td style="width:15%;">Total</td> </tr> <tr> <td></td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">2,691,200</td> <td style="text-align: center;">2,691,200</td> </tr> </table>			Unfunded UNF	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total		0	0	0	0	2,691,200	2,691,200
Unfunded UNF	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total										
	0	0	0	0	2,691,200	2,691,200										
<p>REVENUE TOTAL</p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:15%;">Budget FY 2020/2021</td> <td style="width:15%;">New Request FY 2021/2022</td> <td style="width:15%;">New Request FY 2022/2023</td> <td style="width:15%;">FY 2023/2024</td> <td style="width:15%;">FY 2024/2025</td> <td style="width:15%;">FY 2025/2026 and Beyond</td> <td style="width:15%;">Total</td> </tr> <tr> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">2,691,200</td> <td style="text-align: center;">2,691,200</td> </tr> </table>			Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total	0	0	0	0	0	2,691,200	2,691,200
Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total										
0	0	0	0	0	2,691,200	2,691,200										

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Kramenia Avenue / Emma Lane to Ferris Boulevard</p> <p>Department / Division: Public Works Department / Capital Projects Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>																														
<p>Project Location Map:</p>																																
<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input checked="" type="checkbox"/> District 4</p>																																
<p>Project Description: This project will provide street improvements that include sidewalk, curb, gutter, median, asphalt concrete pavement, striping, and storm drain improvements.</p> <p>Justification or Significance of Improvement: The project is needed to provide widening in the corridor to accommodate traffic growth.</p> <p>Estimated Maintenance Costs: Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.</p>																																
<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2"></th> <th colspan="4" style="text-align: center;">FY 21/22 - FY 22/23 Budget</th> </tr> <tr> <th style="width:30%;">PROJECT PHASE</th> <th style="width:10%;">Budget FY 2020/2021</th> <th style="width:10%;">New Request FY 2021/2022</th> <th style="width:10%;">New Request FY 2022/2023</th> <th style="width:10%;">FY 2023/2024</th> <th style="width:10%;">FY 2024/2025</th> <th style="width:10%;">FY 2025/2026 and Beyond</th> <th style="width:10%;">Total</th> </tr> </thead> <tbody> <tr> <td>Prelim. Eng. / Environ. Design Right of Way Construction Other</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>62,700 156,600 170,500 689,100</td> <td>62,700 156,600 170,500 689,100</td> </tr> <tr> <td>PROJECT TOTAL</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">1,078,900</td> <td style="text-align: right;">1,078,900</td> </tr> </tbody> </table>					FY 21/22 - FY 22/23 Budget				PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total	Prelim. Eng. / Environ. Design Right of Way Construction Other						62,700 156,600 170,500 689,100	62,700 156,600 170,500 689,100	PROJECT TOTAL	0	0	0	0	0	1,078,900	1,078,900
		FY 21/22 - FY 22/23 Budget																														
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total																									
Prelim. Eng. / Environ. Design Right of Way Construction Other						62,700 156,600 170,500 689,100	62,700 156,600 170,500 689,100																									
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FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total																									
Unfunded UNF						1,078,900	1,078,900																									
REVENUE TOTAL	0	0	0	0	0	1,078,900	1,078,900																									

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Lasselle Street / Alessandro Boulevard to Bay Avenue

Department / Division: Public Works Department / Capital Projects Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Description:

This project will provide street improvements that include sidewalk, curb, gutter, asphalt concrete pavement, and striping.

Justification or Significance of Improvement:

The purpose of this project is to improve segments of roadway where full-width street improvements do not currently exist.

Estimated Maintenance Costs:

Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.

Project Location Map:



Council District(s):

District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						24,300 91,100 243,000 861,400
PROJECT TOTAL	0	0	0	0	1,219,800	1,219,800
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	Total
TUMF Cap Proj (3003) 3003.UNF DIF Arterial Streets (2901) 3301.UNF						975,600 244,200
REVENUE TOTAL	0	0	0	0	1,219,800	1,219,800

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Lasselle Street / Fran Lou Drive to Ironwood Avenue</p> <p>Department / Division: Public Works Department / Capital Projects Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>																																								
<p>Project Description: This project will provide street improvements that include sidewalk, curb, gutter, median, asphalt concrete pavement, and striping.</p> <p>Justification or Significance of Improvement: The purpose of this project is to improve segments of roadway where full-width street improvements do not currently exist.</p> <p>Estimated Maintenance Costs: Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.</p>																																										
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PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	New Request FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total																																			
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Right of Way Construction						911,300	911,300																																			
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FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	New Request FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total																																			
Unfunded UNF						7,144,300	7,144,300																																			
REVENUE TOTAL	0	0	0	0	0	7,144,300	7,144,300																																			

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Lasselle Street / Lancia Street to 330 Ft South of Dracaea Avenue

Department / Division: Public Works Department / Capital Projects Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Description:

This project will provide street improvements that include sidewalk, curb, gutter, asphalt concrete pavement, and striping.

Justification or Significance of Improvement:

The purpose of this project is to improve segments of roadway where full-width street improvements do not currently exist.

Estimated Maintenance Costs:

Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.

Project Location Map:



Council District(s):

District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						126,400 341,400 644,000 1,804,300
PROJECT TOTAL	0	0	0	0	2,916,100	2,916,100
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	Total
Unfunded UNF						2,916,100
REVENUE TOTAL	0	0	0	0	2,916,100	2,916,100

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Locust Avenue / Moreno Beach Drive to Redlands Boulevard</p> <p>Department / Division: Public Works Department / Capital Projects Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> Deleted <input type="checkbox"/> In Progress <input type="checkbox"/> On Hold <input type="checkbox"/> Completed</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>
<p>Project Location Map:</p>		
<p>Project Description: This project provides street improvements that will include sidewalk, curb, gutter, median, asphalt concrete paving, and striping.</p> <p>Justification or Significance of Improvement: The purpose of this project is to improve segments of roadway where full-width street improvements do not currently exist.</p> <p>Estimated Maintenance Costs: Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.</p>		
<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input checked="" type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>		

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						289,800 723,500 3,184,500
PROJECT TOTAL	0	0	0	0	4,197,800	4,197,800
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				Total
Unfunded UNF						4,197,800
REVENUE TOTAL	0	0	0	0	4,197,800	4,197,800

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Mathews Road Extension / Kalmia Avenue to 660 Ft South of Kalmia Avenue</p> <p>Department / Division: Public Works Department / Capital Projects Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input checked="" type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>																								
<p>Project Description: This project will extend Mathews Road for 660 feet south of Kalmia Avenue to Kalmia Avenue. The project will provide full roadway improvements that include sidewalk, curb, gutter, asphalt concrete pavement, signage, and striping.</p> <p>Justification or Significance of Improvement: The purpose of this project is to improve segments of roadway where missing street improvements do not currently exist. The construction of this missing street segment of Mathews Road will significantly improve the traffic circulation of North Ridge Elementary School located on Kalmia Avenue west of Mathews Road.</p> <p>Estimated Maintenance Costs: Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.</p>																										
<p>Project Location Map:</p>																										
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PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total																			
Prelim. Eng. / Environ. Design Right of Way Construction Other					182,300 182,300	1,215,000	182,300 150,000 1,215,000																			
PROJECT TOTAL	0	0	0	0	364,600	1,215,000	1,547,300																			
<p>FUNDING SOURCE</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:30%;">FUNDING SOURCE</th> <th style="width:10%;">New Request FY 2021/2022</th> <th style="width:10%;">New Request FY 2022/2023</th> <th style="width:10%;">FY 2023/2024</th> <th style="width:10%;">FY 2024/2025</th> <th style="width:10%;">FY 2025/2026 and Beyond</th> <th style="width:10%;">Total</th> </tr> </thead> <tbody> <tr> <td>Unfunded UNF</td> <td></td> <td></td> <td></td> <td>364,600</td> <td>1,215,000</td> <td>1,579,600</td> </tr> <tr> <td>REVENUE TOTAL</td> <td align="right">0</td> <td align="right">0</td> <td align="right">0</td> <td align="right">364,600</td> <td align="right">1,215,000</td> <td align="right">1,579,600</td> </tr> </tbody> </table>			FUNDING SOURCE	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total	Unfunded UNF				364,600	1,215,000	1,579,600	REVENUE TOTAL	0	0	0	364,600	1,215,000	1,579,600			
FUNDING SOURCE	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total																				
Unfunded UNF				364,600	1,215,000	1,579,600																				
REVENUE TOTAL	0	0	0	364,600	1,215,000	1,579,600																				

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Moreno Beach Drive / Locust Avenue to SR-60

Department / Division: Public Works Department / Capital Projects Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:

Council District(s):
 District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						226,000 484,300 1,251,100 4,918,200 6,879,600
PROJECT TOTAL	0	0	0	0	0	6,879,600
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	Total
TUMF Cap Proj (3003) 3003.UNF DIF Arterial Streets (2901) 3301.UNF						6,098,400 781,200 6,879,600
REVENUE TOTAL	0	0	0	0	0	6,879,600

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

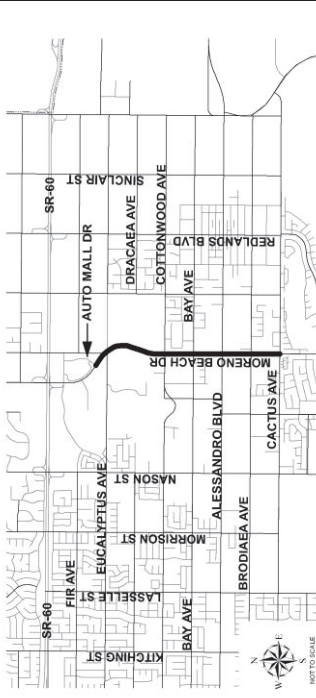
Project Title: Moreno Beach Drive Widening / Cactus Avenue to Auto Mall Drive

Department / Division: Public Works Department / Capital Projects Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:



Project Description:
 The ultimate improvements will widen Moreno Beach Drive from two lanes to a six lane divided major arterial highway at a cost of \$22,786,000. Due to possible funding constraints, a seven-phase approach to the project may be necessary.
 Ph 1 - Construct interim four lane facility at Moreno Beach Dr from Auto Mall Dr to south of Cottonwood Av (\$3,774,000).
 Ph 2 - Alessandro Bl/Moreno Beach Dr intersection widening (\$3,917,000). Ph 3 - Construct interim four lane facility at Moreno Beach Dr from South of Cottonwood Av to north of Alessandro Bl (\$1,748,000). Ph 4 - Construct interim four lane facility at Moreno Beach Dr from south of Alessandro Bl to Cactus Av (\$1,324,000). Ph 5 - Full six lane facility on Moreno Beach Dr from Auto Mall Dr to south of Cottonwood Av (\$5,426,000). Ph 6 - Full six lane facility on Moreno Beach Dr from south of Cottonwood Av to north of Alessandro Bl (\$3,735,000). Ph 7 - Full six lane facility on Moreno Beach Dr from south of Alessandro Bl to Cactus Av (\$2,862,000).
 PAS & PSR: Completed in April 2011; Design & CEQA for Phase I will take approximately 5 months, subject to available funding. Construction for Phase I will take approximately 9 months.

Justification or Significance of Improvement:

This project will improve traffic flow and enhance safety. The arterial improvements are consistent with the City's General Plan.

Estimated Maintenance Costs:

Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.

Council District(s):

District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other				140,900 386,400	1,673,400 4,212,400	140,900 2,059,800 4,212,400
PROJECT TOTAL	0	0	0	527,300	4,058,100	850,500 27,685,000
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	Total
DIF Arterial Streets (2901) 3301.UNF				527,300	4,058,100	27,685,000
REVENUE TOTAL	0	0	0	527,300	4,058,100	27,685,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Morrison Street / Eucalyptus Avenue to Cactus Avenue</p> <p>Department / Division: Public Works Department / Capital Projects Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>
<p>Project Description: This project will provide street improvements that include sidewalk, curb, gutter, median, asphalt concrete pavement, and striping.</p> <p>Justification or Significance of Improvement: The purpose of this project is to improve segments of roadway where full-width street improvements do not currently exist.</p> <p>Estimated Maintenance Costs: Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.</p>		
<p>Project Location Map:</p>		
<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>		

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						583,700 1,130,000 1,585,400 5,847,800
PROJECT TOTAL	0	0	0	0	0	9,146,900
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	Total
Unfunded UNF						9,146,900
REVENUE TOTAL	0	0	0	0	0	9,146,900

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Nandina Avenue / Indian Street to Perris Boulevard

Department / Division: Public Works Department / Capital Projects Division

Project Status:
 New
 Deleted
 In Progress
 On Hold
 Completed

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:

Council District(s):
 District 1 District 2 District 3 District 4

Project Description:
 This project will provide street improvements on the south side of Nandina Avenue that include sidewalk, curb, gutter, median, asphalt concrete pavement, and striping.

Justification or Significance of Improvement:
 The purpose of this project is to improve segments of roadway where full-width street improvements do not currently exist.

Estimated Maintenance Costs:
 Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.

PROJECT PHASE Prelim. Eng. / Environ. Design Right of Way Construction Other	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget					Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	
PROJECT TOTAL	0	0	0	0	0	1,640,300	1,640,300
FUNDING SOURCE DIF Arterial Streets (2901) 3301.UINF	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
						1,640,300	1,640,300
REVENUE TOTAL	0	0	0	0	0	1,640,300	1,640,300

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Nason Street / Elder Avenue to Ironwood Avenue

Department / Division: Public Works Department / Capital Projects Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:

Council District(s):
 District 1
 District 2
 District 3
 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						103,300 121,500 243,000 747,200
PROJECT TOTAL	0	0	0	0	1,215,000	1,215,000
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				Total
TUMF Cap Proj (3003) 3003.UNF						1,215,000
REVENUE TOTAL	0	0	0	0	1,215,000	1,215,000

b

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Oliver Street / Alessandro Boulevard to Iris Avenue

Department / Division: Public Works Department / Capital Projects Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:

Council District(s):
 District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						275,800 688,900 464,700 3,032,000
PROJECT TOTAL	0	0	0	0	0	4,461,400
FUNDING SOURCE DIF Arterial Streets (2901) 3301.UINF						
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	Total
					4,461,400	4,461,400
REVENUE TOTAL	0	0	0	0	4,461,400	4,461,400

Attachment: Exhibit A - Proposed CIP FYs 2021/22 - 2022/23 (4417 : Capital Improvement Plan Fiscal Years 2021/22 - 2022/23)

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Pavement Rehabilitation for Various Streets (CDBG)</p> <p>Department / Division: Public Works Department / Capital Projects Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> Deleted <input type="checkbox"/> In Progress <input type="checkbox"/> On Hold <input type="checkbox"/> Completed</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input checked="" type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>					
<p>Project Location Map:</p> <p align="center">CITYWIDE</p>							
<p>Project Description:</p> <p>This project is to provide pavement rehabilitation for various streets in the CDBG target areas. Rehabilitation includes the removal and replacement of pavement surface as well as crack sealing and applications of slurry seal to extend the service life of the street pavement.</p> <p>Justification or Significance of Improvement:</p> <p>The project within CDBG target areas and eligible to receive CDBG funding. Streets are prioritized and selected for rehabilitation based on their pavement conditions.</p> <p>Estimated Maintenance Costs:</p> <p>Street maintenance is typically funded by Gas Tax and Measure A funds, and costs on average are approximately \$2.50 / square foot for grind and overlay and \$0.75 / square foot for slurry seal. Street maintenance costs over a 20 year period are estimated to average almost \$12,000 per 13 foot wide lane mile per year. Street maintenance funding will be part of the deferred maintenance for the whole network.</p>							
<p>0</p>							
<p>FY 21/22 - FY 22/23 Budget</p>							
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other				90,000 910,000 1,000,000	90,000 910,000 1,000,000	90,000 910,000 1,000,000	270,000 2,730,000 3,000,000
FUNDING SOURCE			New Request FY 2022/2023				
CDBG (2512) UNF	0			1,000,000	1,000,000	1,000,000	3,000,000
REVENUE TOTAL			0	1,000,000	1,000,000	1,000,000	3,000,000

Council District(s):

- District 1 District 2 District 3 District 4

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Perris Boulevard / Dracaea Avenue to Brodiaea Avenue
Department / Division: Public Works Department / Capital Projects Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:



Council District(s):

District 1 District 2 District 3 District 4

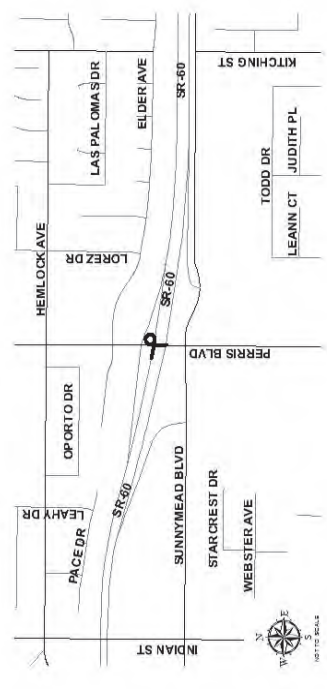
Project Description:
 This project will provide street improvements that include sidewalk, curb, gutter, median, asphalt concrete pavement, and striping.

Justification or Significance of Improvement:
 The purpose of this project is to improve segments of roadway where full-width street improvements do not currently exist.

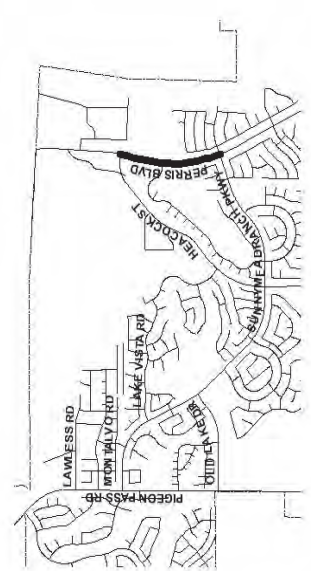
Estimated Maintenance Costs:
 Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						193,200 387,600 1,500,500 2,081,300
PROJECT TOTAL	0	0	0	0	2,081,300	2,081,300
FUNDING SOURCE	Budget FY 2020/2021	FY 2025/2026 and Beyond				Total
DIF Arterial Streets (2901) 3301 JUNF						2,081,300
REVENUE TOTAL	0	0	0	0	2,081,300	2,081,300

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Perris Boulevard / Hemlock Avenue to SR-60 Reconfiguration</p> <p>Department / Division: Public Works Department / Capital Projects Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferable (Start within 5 to 10 yrs)</p>					
<p>Project Description: This project involves street reconfiguration and new ramps including a new loop on-ramp requiring the widening of the westbound SR-60 freeway bridge.</p> <p>Justification or Significance of Improvement: Expansion of current facilities is needed due to projected traffic demand.</p> <p>Estimated Maintenance Costs: Bridge surface and street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs. Caltrans will fund maintenance of the ramps, freeway, and structures.</p>							
<p>Project Location Map:</p> 							
<p>Council District(s):</p> <p><input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>							
<p>FY 21/22 - FY 22/23 Budget</p>							
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other						243,000 425,300 18,030,600	243,000 425,300 18,030,600
PROJECT TOTAL	0	0	0	0	0	18,698,900	18,698,900
<p>FUNDING SOURCE</p>							
Unfunded UNF						18,698,900	18,698,900
REVENUE TOTAL	0	0	0	0	0	18,698,900	18,698,900

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Perris Boulevard / North of Sunnymead Ranch Parkway to Heacock Street</p> <p>Department / Division: Public Works Department / Capital Projects Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>																						
<p>Project Location Map:</p> 																								
<p>Project Description: This project will provide street improvements that include sidewalk, curb, gutter, median, asphalt concrete pavement, and striping.</p> <p>Justification or Significance of Improvement: The purpose of this project is to improve segments of roadway where full-width street improvements do not currently exist.</p> <p>Estimated Maintenance Costs: Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.</p>																								
<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input checked="" type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>																								
<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">PROJECT PHASE</th> <th colspan="4">FY 21/22 - FY 22/23 Budget</th> <th rowspan="2">Total</th> </tr> <tr> <th>New Request FY 2021/2022</th> <th>New Request FY 2022/2023</th> <th>FY 2023/2024</th> <th>FY 2024/2025</th> </tr> </thead> <tbody> <tr> <td>Prelim. Eng. / Environ. Design Right of Way Construction Other</td> <td></td> <td></td> <td></td> <td></td> <td>84,000 322,800 2,697,500</td> </tr> <tr> <td>PROJECT TOTAL</td> <td align="right">0</td> <td align="right">0</td> <td align="right">0</td> <td align="right">0</td> <td align="right">3,104,300</td> </tr> </tbody> </table>			PROJECT PHASE	FY 21/22 - FY 22/23 Budget				Total	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	Prelim. Eng. / Environ. Design Right of Way Construction Other					84,000 322,800 2,697,500	PROJECT TOTAL	0	0	0	0	3,104,300
PROJECT PHASE	FY 21/22 - FY 22/23 Budget				Total																			
	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025																				
Prelim. Eng. / Environ. Design Right of Way Construction Other					84,000 322,800 2,697,500																			
PROJECT TOTAL	0	0	0	0	3,104,300																			
<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">FUNDING SOURCE</th> <th colspan="4">FY 2025/2026 and Beyond</th> <th rowspan="2">Total</th> </tr> <tr> <th>New Request FY 2021/2022</th> <th>New Request FY 2022/2023</th> <th>FY 2023/2024</th> <th>FY 2024/2025</th> </tr> </thead> <tbody> <tr> <td>TUMF Cap Proj (3003) 3003.UNF DIF Arterial Streets (2901) 3301.UNF</td> <td></td> <td></td> <td></td> <td></td> <td>1,396,900 1,707,400</td> </tr> <tr> <td>REVENUE TOTAL</td> <td align="right">0</td> <td align="right">0</td> <td align="right">0</td> <td align="right">0</td> <td align="right">3,104,300</td> </tr> </tbody> </table>			FUNDING SOURCE	FY 2025/2026 and Beyond				Total	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	TUMF Cap Proj (3003) 3003.UNF DIF Arterial Streets (2901) 3301.UNF					1,396,900 1,707,400	REVENUE TOTAL	0	0	0	0	3,104,300
FUNDING SOURCE	FY 2025/2026 and Beyond				Total																			
	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025																				
TUMF Cap Proj (3003) 3003.UNF DIF Arterial Streets (2901) 3301.UNF					1,396,900 1,707,400																			
REVENUE TOTAL	0	0	0	0	3,104,300																			

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Quincy Street / Eucalyptus Avenue to Cactus Avenue

Department / Division: Public Works Department / Capital Projects Division

Project Status:
 New
 Deleted
 In Progress
 On Hold
 Completed

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:

Project Description:
 This project will provide street improvements that include sidewalk, curb, gutter, asphalt, concrete paving, and striping.

Justification or Significance of Improvement:
 The purpose of this project is to improve segments of roadway where full-width street improvements do not currently exist.

Estimated Maintenance Costs:
 Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.

Council District(s):
 District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						765,500 1,914,200 4,654,100 8,422,400
PROJECT TOTAL	0	0	0	0	15,756,200	15,756,200
FUNDING SOURCE	Budget FY 2020/2021	FY 2025/2026 and Beyond				Total
DIF Arterial Streets (2901) 3301 JUNF						15,756,200
REVENUE TOTAL	0	0	0	0	15,756,200	15,756,200

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Quincy Street / Locust Avenue to SR-60

Department / Division: Public Works Department / Capital Projects Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:

Project Description:
 This project provides street improvements that will include sidewalk, curb, gutter, median, asphalt concrete paving, and striping.

Justification or Significance of Improvement:
 The purpose of this project is to improve segments of roadway where full-width street improvements do not currently exist.

Estimated Maintenance Costs:
 Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.

Council District(s):
 District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						85,100 224,800 789,800 2,187,000
PROJECT TOTAL	0	0	0	0	0	3,286,700
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				Total
Unfunded UNF						3,286,700
REVENUE TOTAL	0	0	0	0	0	3,286,700

Attachment: Exhibit A - Proposed CIP FYs 2021/22 - 2022/23 (4417 : Capital Improvement Plan Fiscal Years 2021/22 - 2022/23)

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Reche Canyon Road / Northerly City Limits to Moreno Beach Drive

Department / Division: Public Works Department / Capital Projects Division

Project Status:
 New
 Deleted
 In Progress
 On Hold
 Completed

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:



Council District(s):
 District 1
 District 2
 District 3
 District 4

Project Description:
 This project provides street improvements that will include sidewalk, curb, gutter, median, asphalt concrete pavement, and striping.

Justification or Significance of Improvement:
 The purpose of this project is to improve segments of roadway where full-width street improvements do not currently exist.

Estimated Maintenance Costs:
 Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.

PROJECT PHASE Prelim. Eng. / Environ. Design Right of Way Construction Other	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
PROJECT TOTAL	0	0	0	0	4,477,300	4,477,300
FUNDING SOURCE TUMF Cap Proj (3003) 3003.UNF	Budget FY 2020/2021	New Request FY 2021/2022				Total
				FY 2023/2024	FY 2024/2025 and Beyond	4,477,300
				0	4,477,300	4,477,300
				0	0	4,477,300

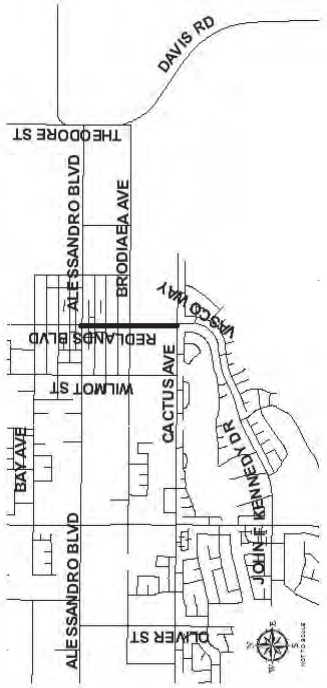
CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Redlands Boulevard / Alessandro Boulevard to Cactus Avenue

Department / Division: Public Works Department / Capital Projects Division

Project Status:
 New
 Deleted
 In Progress
 On Hold
 Completed

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:


Council District(s):
 District 1
 District 2
 District 3
 District 4

Project Description:
This project will provide street improvements that include sidewalk, curb, gutter, median, asphalt concrete pavement, and striping.

Justification or Significance of Improvement:
The purpose of this project is to improve segments of roadway where full-width street improvements do not currently exist.

Estimated Maintenance Costs:
Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						
PROJECT TOTAL	0	0	0	0	1,213,200	1,213,200
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	Total
DIF Arterial Streets (2901) 3301.JUNF					1,213,200	1,213,200
REVENUE TOTAL	0	0	0	0	1,213,200	1,213,200

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Redlands Boulevard / North City Limits to Alessandro Boulevard</p> <p>Department / Division: Public Works Department / Capital Projects Division</p> <p>Project Description: This project will provide street improvements that include sidewalk, curb, gutter, median, asphalt concrete pavement, and striping.</p> <p>Justification or Significance of Improvement: The purpose of this project is to improve segments of roadway where full-width street improvements do not currently exist.</p> <p>Estimated Maintenance Costs: Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> Deleted <input type="checkbox"/> In Progress <input type="checkbox"/> On Hold <input type="checkbox"/> Completed</p> <p>Project Location Map:</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p> <p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input checked="" type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>																																																																						
<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2"></th> <th colspan="4" style="text-align: center;">FY 21/22 - FY 22/23 Budget</th> </tr> <tr> <th style="width:30%;">PROJECT PHASE</th> <th style="width:10%;">Budget FY 2020/2021</th> <th style="width:10%;">New Request FY 2021/2022</th> <th style="width:10%;">New Request FY 2022/2023</th> <th style="width:10%;">FY 2023/2024</th> <th style="width:10%;">FY 2024/2025</th> <th style="width:10%;">FY 2025/2026 and Beyond</th> <th style="width:10%;">Total</th> </tr> </thead> <tbody> <tr> <td>Prelim. Eng. / Environ. Design</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>2,004,800</td> <td>2,004,800</td> </tr> <tr> <td>Right of Way Construction</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>4,252,500</td> <td>4,252,500</td> </tr> <tr> <td>Other</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>5,346,000</td> <td>5,346,000</td> </tr> <tr> <td>PROJECT TOTAL</td> <td align="right">0</td> <td align="right">0</td> <td align="right">0</td> <td align="right">0</td> <td align="right">0</td> <td align="right">27,641,300</td> <td align="right">27,641,300</td> </tr> <tr> <td>FUNDING SOURCE</td> <td>Budget FY 2020/2021</td> <td>New Request FY 2021/2022</td> <td>New Request FY 2022/2023</td> <td>FY 2023/2024</td> <td>FY 2024/2025</td> <td>FY 2025/2026 and Beyond</td> <td>Total</td> </tr> <tr> <td>Unfunded UNF</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>27,641,300</td> <td>27,641,300</td> </tr> <tr> <td>REVENUE TOTAL</td> <td align="right">0</td> <td align="right">0</td> <td align="right">0</td> <td align="right">0</td> <td align="right">0</td> <td align="right">27,641,300</td> <td align="right">27,641,300</td> </tr> </tbody> </table>					FY 21/22 - FY 22/23 Budget				PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total	Prelim. Eng. / Environ. Design						2,004,800	2,004,800	Right of Way Construction						4,252,500	4,252,500	Other						5,346,000	5,346,000	PROJECT TOTAL	0	0	0	0	0	27,641,300	27,641,300	FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total	Unfunded UNF						27,641,300	27,641,300	REVENUE TOTAL	0	0	0	0	0	27,641,300	27,641,300
		FY 21/22 - FY 22/23 Budget																																																																						
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total																																																																	
Prelim. Eng. / Environ. Design						2,004,800	2,004,800																																																																	
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PROJECT TOTAL	0	0	0	0	0	27,641,300	27,641,300																																																																	
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Unfunded UNF						27,641,300	27,641,300																																																																	
REVENUE TOTAL	0	0	0	0	0	27,641,300	27,641,300																																																																	

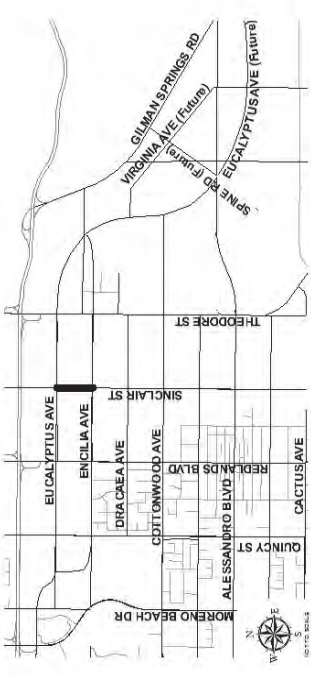
CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: San Michele Road / Indian Street to Perris Boulevard</p> <p>Department / Division: Public Works Department / Capital Projects Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>					
<p>Project Location Map:</p>							
<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input checked="" type="checkbox"/> District 4</p>							
<p>Project Description: This project will provide street improvements that include sidewalk, curb, gutter, median, asphalt concrete pavement, and striping.</p> <p>Justification or Significance of Improvement: The purpose of this project is to improve segments of roadway where full-width street improvements do not currently exist.</p> <p>Estimated Maintenance Costs: Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.</p>							
<p>FY 21/22 - FY 22/23 Budget</p>							
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other						66,800 182,300 121,500 0	66,800 182,300 121,500 0
PROJECT TOTAL	0	0	0	0	0	370,600	370,600
<p>FUNDING SOURCE</p> <p>DIF Arterial Streets (2901) 3301.UNF</p>			New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	Total
						370,600	370,600
REVENUE TOTAL	0	0	0	0	0	370,600	370,600

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

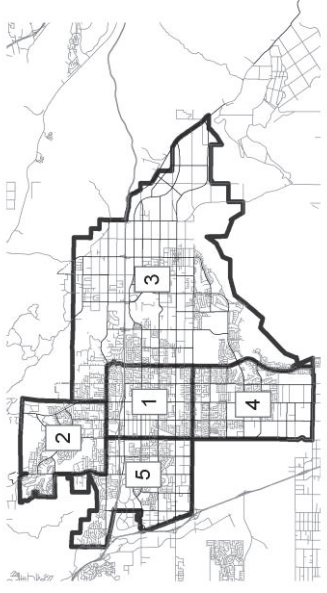
<p>Project Title: Sinclair Street / Encilia Avenue to Alessandro Boulevard</p> <p>Department / Division: Public Works Department / Capital Projects Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>																																								
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PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total																																			
Prelim. Eng. / Environ. Design						64,400	64,400																																			
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FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total																																			
DIF Arterial Streets (2901) 3301.UNF						12,339,600	12,339,600																																			
REVENUE TOTAL	0	0	0	0	0	12,339,600	12,339,600																																			

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Sinclair Street / Eucalyptus Avenue to Encilia Avenue</p> <p>Department / Division: Public Works Department / Capital Projects Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>
<p>Project Description: This project will provide street improvements that include sidewalk, curb, gutter, asphalt concrete pavement, and striping.</p> <p>Justification or Significance of Improvement: The purpose of this project is to improve segments of roadway where full-width street improvements do not currently exist.</p> <p>Estimated Maintenance Costs: Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.</p>		
<p>Project Location Map:</p> 		
<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>		

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						21,900 65,600 695,000 0
PROJECT TOTAL	0	0	0	0	782,500	782,500
FUNDING SOURCE	Budget FY 2020/2021	FY 2021/2022				Total
DIF Arterial Streets (2901) 3301.UNF						782,500
REVENUE TOTAL	0	0	0	0	782,500	782,500

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Slurry Seal Program</p> <p>Department / Division: Public Works Department / Capital Projects Division</p>	<p>Project Status:</p> <p><input type="checkbox"/> New <input type="checkbox"/> Deleted</p> <p><input type="checkbox"/> In Progress <input checked="" type="checkbox"/> On Hold</p> <p><input type="checkbox"/> Completed</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr)</p> <p><input checked="" type="checkbox"/> Necessary (Start within 1 to 3 yrs)</p> <p><input type="checkbox"/> Desirable (Start within 3 to 5 yrs)</p> <p><input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>					
<p>Project Location Map:</p> 							
<p>Council District(s):</p> <p><input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input checked="" type="checkbox"/> District 4</p>							
<p>Project Description: This program is part of the City's Pavement Management System. The purpose of slurry seal coating is to prevent deterioration of the streets by protecting the street surface from loss of fines and ultraviolet rays, thus extending the life of the road. The City is divided into five slurry seal zones. A slurry seal treatment has an approximate five year life.</p> <p>Justification or Significance of Improvement: Slurry seal enhances the roadway surface, protects the pavement structure integrity, and extends the life of the pavement.</p> <p>Estimated Maintenance Costs: Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.</p>							
<p>FY 21/22 - FY 22/23 Budget</p>							
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other				279,500 1,336,500	279,500 1,336,500	279,500 1,336,500	838,500 4,009,500
PROJECT TOTAL	0	0	0	1,616,000	1,616,000	1,616,000	4,848,000
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Unfunded UNF				1,616,000	1,616,000	1,616,000	4,848,000
REVENUE TOTAL	0	0	0	1,616,000	1,616,000	1,616,000	4,848,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: SR-60 / Perris Boulevard Westbound Off-Ramp Widening

Department / Division: Public Works Department / Capital Projects Division

Project Status:
 New
 Deleted
 In Progress
 On Hold
 Completed

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:

Council District(s):
 District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other				35,000 70,000 360,000		35,000 70,000 360,000
PROJECT TOTAL	0	0	0	465,000	0	465,000
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				Total
Unfunded UNF				465,000		465,000
REVENUE TOTAL	0	0	0	465,000	0	465,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: SR-60 Interchange / Gilman Springs Road

Department / Division: Public Works Department / Capital Projects Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:

Council District(s):
 District 1
 District 2
 District 3
 District 4

Project Description:
This project consists of a replacement interchange, including bridge replacement. Caltrans will require all such work to be approved and processed through the City of Moreno Valley and the County of Riverside prior to submittal to Caltrans for approval.

Estimated total cost: \$70,000,000

Justification or Significance of Improvement:
The existing interchange requires modification to meet future traffic demands.

Estimated Maintenance Costs:
Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs. Caltrans will fund maintenance of the freeway, ramps, and structures.

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other				2,430,000	6,075,000	2,430,000 6,075,000 17,010,000 59,535,000 85,050,000
PROJECT TOTAL	0	0	0	2,430,000	6,075,000	85,050,000
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	Total
Highland Fairview (011) 011.UNF TUMF Cap Proj (3003) 3003.UNF				48,600 2,381,400	6,075,000	48,600 85,001,400
REVENUE TOTAL	0	0	0	2,430,000	6,075,000	85,050,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Street Improvement Program (SIP)</p> <p>Department / Division: Public Works Department / Capital Projects Division</p>	<p>Project Status:</p> <p><input type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input checked="" type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input checked="" type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>						
<p>Project Description: This project consists of design, environmental, and construction of selected private and unmaintained streets, for acceptance into the City's public maintained street system.</p> <p>Justification or Significance of Improvement: Funding for selected private streets is based on technical criteria for road, public utility, and public services purposes.</p> <p>Estimated Maintenance Costs: Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.</p> <p align="center">CITYWIDE</p>								
<p>Project Location Map:</p>								
<p>Council District(s):</p> <p><input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input checked="" type="checkbox"/> District 4</p>								
FY 21/22 - FY 22/23 Budget								
PROJECT PHASE	Budget	New Request	FY 2021/2022	FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other							243,000	243,000
PROJECT TOTAL	0	0	0	0	0	0	243,000	243,000
FUNDING SOURCE								
Unfunded UNF							243,000	243,000
REVENUE TOTAL	0	0	0	0	0	0	243,000	243,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Street In-Lieu Fees Project</p> <p>Department / Division: Public Works Department / Land Development Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> Deleted</p> <p><input type="checkbox"/> In Progress <input type="checkbox"/> On Hold</p> <p><input type="checkbox"/> Completed</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr)</p> <p><input type="checkbox"/> Necessary (Start within 1 to 3 yrs)</p> <p><input type="checkbox"/> Desirable (Start within 3 to 5 yrs)</p> <p><input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>																																							
<p>Project Description:</p> <p>The street in-lieu fees help construct public improvements that are linked to the projects for which the fees are collected. A project will be completed when fees collected from property owners are sufficient to complete missing street segment improvements for a particular street. Some project streets have been accepted into the City's maintained street system while others have not.</p> <p>Justification or Significance of Improvement:</p> <p>As there is no way to predict when and where development will occur, it is uncertain when the project streets will be constructed. Project streets will be programmed for ultimate improvements when sufficient funds are received from property owners as they develop and pay their street in-lieu of construction fees.</p> <p>Estimated Maintenance Costs:</p> <p>Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.</p>																																									
<p>Project Location Map:</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Street Name</th> <th>Project Number</th> <th>Collected</th> </tr> </thead> <tbody> <tr> <td>Bella Ct</td> <td>PM 26547</td> <td>\$13,000.00</td> </tr> <tr> <td>Black Oak AV</td> <td>PA04-0011 / PM 19476</td> <td>\$10,446.00</td> </tr> <tr> <td>Highland Bl</td> <td>P05-169</td> <td>\$10,383.00</td> </tr> <tr> <td>Hilton Dr</td> <td>PA04-0182</td> <td>\$5,226.00</td> </tr> <tr> <td>Maltby Av and Kimberly AV</td> <td>P04-216</td> <td>\$33,420.00</td> </tr> <tr> <td>Quincy St</td> <td>PA02-0122</td> <td>\$18,333.57</td> </tr> <tr> <td>Via Von Botsch</td> <td>PA06-0019</td> <td>\$14,899.00</td> </tr> <tr> <td>Black Oak AV</td> <td>PA04-0207</td> <td>\$9,440.64</td> </tr> <tr> <td>Kalmia AV</td> <td>PA03-0124</td> <td>\$21,677.00</td> </tr> <tr> <td>Locust AV</td> <td>PA13-0067</td> <td>\$17,083.00</td> </tr> <tr> <td>Locust AV</td> <td>P14-131</td> <td>\$ 6,262.00</td> </tr> <tr> <td colspan="2"></td> <td align="right">Total \$276,198.21</td> </tr> </tbody> </table>			Street Name	Project Number	Collected	Bella Ct	PM 26547	\$13,000.00	Black Oak AV	PA04-0011 / PM 19476	\$10,446.00	Highland Bl	P05-169	\$10,383.00	Hilton Dr	PA04-0182	\$5,226.00	Maltby Av and Kimberly AV	P04-216	\$33,420.00	Quincy St	PA02-0122	\$18,333.57	Via Von Botsch	PA06-0019	\$14,899.00	Black Oak AV	PA04-0207	\$9,440.64	Kalmia AV	PA03-0124	\$21,677.00	Locust AV	PA13-0067	\$17,083.00	Locust AV	P14-131	\$ 6,262.00			Total \$276,198.21
Street Name	Project Number	Collected																																							
Bella Ct	PM 26547	\$13,000.00																																							
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<p>Council District(s):</p> <p><input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input checked="" type="checkbox"/> District 4</p>																																									

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget			Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	
Prelim. Eng. / Environ. Design Right of Way Construction Other					
PROJECT TOTAL	0	0	0	0	319,600
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024			FY 2025/2026 and Beyond
Unfunded (4010) 4010.UNF					
REVENUE TOTAL	0	0	0	0	319,600

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Street Lighting Infill		Project Status: <input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold	Project Priority in CIP Category: <input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input checked="" type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)
Department / Division: Public Works Department / Transportation Engineering Division			
Project Description: This project will fund installation of street lighting at locations to be identified based on need. Lights may be utility or solar-powered. Project includes the cost to annex into a lighting district.			
Justification or Significance of Improvement: The project will allow for cost-effective deployment of safety-enhancing street lights.			
Estimated Maintenance Costs: New street lights cost about \$225 per street light per year for maintenance and are funded with General Fund and Community Service District funds.	CITYWIDE		
Council District(s): <input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input checked="" type="checkbox"/> District 4			

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other				60,000	60,000	180,000
PROJECT TOTAL	0	0	0	60,000	60,000	180,000

FUNDING SOURCE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Unfunded UNF				60,000	60,000	180,000
REVENUE TOTAL	0	0	0	60,000	60,000	180,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Sunnymead Boulevard / Perris Boulevard to Kitching Street

Department / Division: Public Works Department / Land Development Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:

Project Description:
This project will provide street improvements that include sidewalk, curb, gutter, asphalt concrete pavement, and striping.

Justification or Significance of Improvement:
The purpose of this project is to improve segments of roadway where full-width street and sidewalk improvements do not currently exist.

Estimated Maintenance Costs:
Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.

Council District(s):
 District 1
 District 2
 District 3
 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget					Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other							150,000 200,000 150,000 1,000,000 1,500,000
PROJECT TOTAL	0	0	0	0	0	0	1,500,000
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024					Total
Unfunded UNF							1,500,000
REVENUE TOTAL	0	0	0	0	0	0	1,500,000

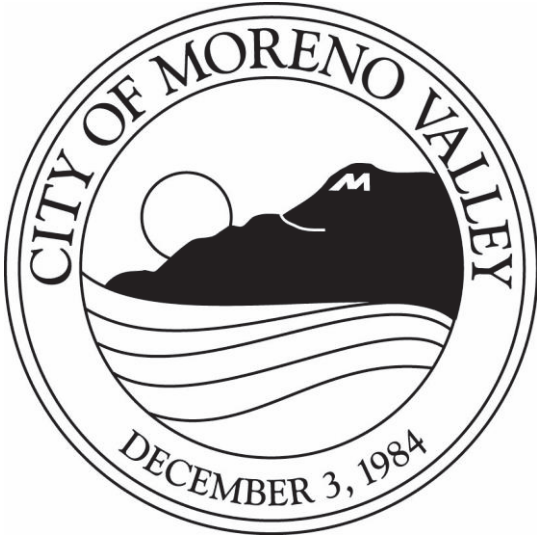
CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Theodore Street and WLC Parkway / Ironwood Avenue to Alessandro Boulevard</p> <p>Department / Division: Public Works Department / Capital Projects Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>					
<p>Project Location Map:</p>							
<p>Project Description: This project will provide street improvements that include sidewalk, curb, gutter, median, asphalt concrete pavement, and striping for Theodore Street and World Logistics Center (WLC) Parkway.</p> <p>Justification or Significance of Improvement: The purpose of this project is to improve segments of roadway where full-width street improvements do not currently exist.</p> <p>Estimated Maintenance Costs: Street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.</p>							
<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input checked="" type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>							
<p>FY 21/22 - FY 22/23 Budget</p>							
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other							
PROJECT TOTAL	0	0	0	0	0	12,519,400	12,519,400
<p>FUNDING SOURCE</p>							
DIF Arterial Streets (2901) 3301.UNF							
REVENUE TOTAL	0	0	0	0	0	12,519,400	12,519,400

**CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond**

<u>Project Name</u>	<u>Page #</u>
<i>Bridges</i>	
<i>Unfunded Projects</i>	
Bridge Mitigation Fees (Fair-Share Contribution)	BR-11
Brodiaea Avenue Bridge / 735 Ft East of Redlands Boulevard	BR-12
Cactus Avenue Bridge / 405 Ft East of Wilmot Street	BR-13
Indian Street / Lateral B Bridge	BR-14
Indian Street / SR-60 Overpass	BR-15
Iris Avenue Bridge Over Line F (Bridge No 56C0418)	BR-16
Ironwood Avenue / Quincy Street Bridge	BR-17
Kalmia Avenue Bridge / 300 Ft West of Quincy Street	BR-18
Kitching Street Bridge / Perris Valley Storm Drain Lateral A	BR-19
Kitching Street Bridge / Perris Valley Storm Drain Lateral B	BR-20

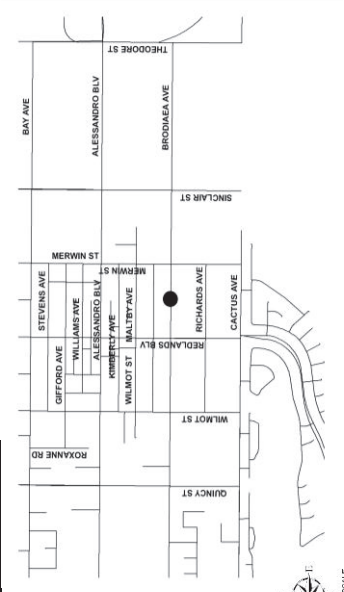
CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond



CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Bridge Mitigation Fees (Fair-Share Contribution)	Project Status: <input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold	Project Priority in CIP Category: <input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)
Department / Division: Public Works Department / Capital Projects Division	Project Location Map:	
Project Description: Mitigation fees are collected to help construct bridge improvements that are linked to the projects for which the fees are collected. Fair-share contributions toward bridge construction is mitigation for traffic related impacts. A bridge project will be completed when fees collected from property owners are sufficient to complete bridge improvements.	Facility Location Kitching / Perris Valley SD Bridge-----Warmington-----	Project Number Collected -----\$72,615.70
Justification or Significance of Improvement: The Kitching Street Bridge over Perris Valley Storm Drain Channel is consistent with the City's general plan circulation element.	Council District(s): <input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input checked="" type="checkbox"/> District 4	
Estimated Maintenance Costs: Bridge improvements and routine maintenance costs are estimated to average approximately \$1.20 per square foot per year. Currently no new funding source has been identified to fund these maintenance costs.		
PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget
Prelim. Eng. / Environ. Design Right of Way Construction Other		New Request FY 2021/2022 New Request FY 2022/2023 Total
		0 0 0
PROJECT TOTAL	0	0 0 88,600
FUNDING SOURCE	Budget FY 2020/2021	FY 2025/2026 and Beyond
Unfunded UNF		FY 2023/2024 FY 2024/2025 FY 2025/2026 and Beyond Total
		0 0 88,600 88,600
REVENUE TOTAL	0	0 0 88,600 88,600

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Brodiaea Avenue Bridge / 735 Ft East of Redlands Boulevard		Project Status: <input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold		Project Priority in CIP Category: <input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)			
Department / Division: Public Works Department / Capital Projects Division		Project Location Map: 					
Project Description: This project will involve the design and construction of the bridge on Brodiaea Avenue over Channel Lateral F.							
Justification or Significance of Improvement: This master drainage facility will convey storm run-off.							
Estimated Maintenance Costs: Bridge improvement and routine maintenance costs are estimated to average approximately \$1.20 per square foot per year. Currently no new funding source has been identified to fund these maintenance costs.							
Council District(s): <input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4							
PROJECT PHASE							
Prelim. Eng. / Environ. Design	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Right of Way Construction							238,100
Other							202,900
PROJECT TOTAL	0	0	0	0	0	2,794,500	2,794,500
FUNDING SOURCE							
Unfunded UNF	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
						2,794,500	2,794,500
REVENUE TOTAL	0	0	0	0	0	2,794,500	2,794,500

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Cactus Avenue Bridge / 405 Ft East of Wilmot Street

Department / Division: Public Works Department / Capital Projects Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:

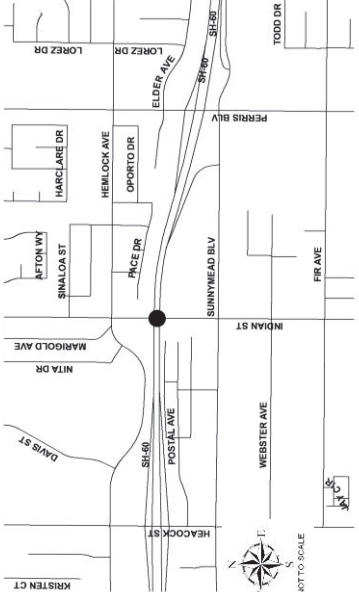
Council District(s):
 District 1
 District 2
 District 3
 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						182,400 390,300 76,800 1,677,300
PROJECT TOTAL	0	0	0	0	0	2,326,800
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	Total
Unfunded UNF						
REVENUE TOTAL	0	0	0	0	0	2,326,800

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Indian Street / Lateral B Bridge</p> <p>Department / Division: Public Works Department / Capital Projects Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>																					
<p>Project Location Map:</p>																							
<p>Justification or Significance of Improvement: This project will improve and provide continuity in traffic.</p> <p>Estimated Maintenance Costs: Bridge improvement and routine maintenance costs are estimated to average approximately \$1.20 per square foot per year. Currently no new funding source has been identified to fund these maintenance costs.</p>																							
<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input checked="" type="checkbox"/> District 4</p>																							
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	New Request FY 2021/2022	New Request FY 2022/2023	New Request FY 2023/2024	New Request FY 2024/2025	New Request FY 2025/2026 and Beyond	Total																	
PROJECT TOTAL	0	0	0	0	866,800	866,800																	
<p>FUNDING SOURCE</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;">New Request FY 2021/2022</th> <th style="text-align: center;">New Request FY 2022/2023</th> <th style="text-align: center;">New Request FY 2023/2024</th> <th style="text-align: center;">New Request FY 2024/2025</th> <th style="text-align: center;">New Request FY 2025/2026 and Beyond</th> <th style="text-align: center;">Total</th> </tr> </thead> <tbody> <tr> <td style="text-align: right;">Unfunded UNF</td> <td></td> <td></td> <td></td> <td></td> <td style="text-align: center;">866,800</td> <td style="text-align: center;">866,800</td> </tr> <tr> <td style="text-align: right;">REVENUE TOTAL</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">866,800</td> <td style="text-align: center;">866,800</td> </tr> </tbody> </table>				New Request FY 2021/2022	New Request FY 2022/2023	New Request FY 2023/2024	New Request FY 2024/2025	New Request FY 2025/2026 and Beyond	Total	Unfunded UNF					866,800	866,800	REVENUE TOTAL	0	0	0	0	866,800	866,800
	New Request FY 2021/2022	New Request FY 2022/2023	New Request FY 2023/2024	New Request FY 2024/2025	New Request FY 2025/2026 and Beyond	Total																	
Unfunded UNF					866,800	866,800																	
REVENUE TOTAL	0	0	0	0	866,800	866,800																	

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Indian Street / SR-60 Overpass</p> <p>Department / Division: Public Works Department / Capital Projects Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input checked="" type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>																																
<p>Project Description: This project will involve the design and construction of a replacement bridge at Indian Street over SR-60.</p> <p>Justification or Significance of Improvement: The existing bridge is considered structurally deficient and functionally obsolete and will require replacement in the future. A bridge assessment and funding application were prepared and submitted to Caltrans in April 2014. Funds were not available at the time.</p> <p>Estimated Maintenance Costs: Bridge surface and street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs. Caltrans will fund maintenance of the structure.</p>																																		
<p>Project Location Map:</p> 																																		
<p>Council District(s):</p> <p><input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>																																		
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	New Request FY 2021/2022	New Request FY 2022/2023	Total																															
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Prelim. Eng. / Environ.			607,500																															
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<p>FUNDING SOURCE</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;">New Request FY 2021/2022</th> <th style="text-align: center;">New Request FY 2022/2023</th> <th style="text-align: center;">Total</th> </tr> </thead> <tbody> <tr> <td>FUNDING SOURCE</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Unfunded UNF</td> <td></td> <td></td> <td style="text-align: right;">17,155,900</td> </tr> <tr> <td>REVENUE TOTAL</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: right;">17,155,900</td> </tr> </tbody> </table>				New Request FY 2021/2022	New Request FY 2022/2023	Total	FUNDING SOURCE				Unfunded UNF			17,155,900	REVENUE TOTAL	0	0	17,155,900																
	New Request FY 2021/2022	New Request FY 2022/2023	Total																															
FUNDING SOURCE																																		
Unfunded UNF			17,155,900																															
REVENUE TOTAL	0	0	17,155,900																															

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Iris Avenue Bridge Over Line F (Bridge No 56C0418)

Department / Division: Public Works Department / Capital Projects Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:

Project Description:
This structure requires extensive rehabilitation starting with inspection, assessment, Caltrans funding application, and follow-up design and construction.

Justification or Significance of Improvement:
Recent inspection found the bridge has deficiencies.

Estimated Maintenance Costs:
Bridge surface and street maintenance costs over a 20 year period are estimated to average approximately \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.

Council District(s):
 District 1
 District 2
 District 3
 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other				60,750	182,300	121,500 182,300
PROJECT TOTAL	0	0	0	60,750	182,300	3,402,000 3,705,800
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	Total
Unfunded UNF				60,750	182,300	3,462,750
REVENUE TOTAL	0	0	0	60,750	182,300	3,705,800

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Ironwood Avenue / Quincy Street Bridge

Department / Division: Public Works Department / Capital Projects Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:

Project Description:
This project will involve the design and construction of a bridge on Ironwood Avenue over Quincy Channel.

Justification or Significance of Improvement:
This master drainage facility will convey storm run-off.

Estimated Maintenance Costs:
Bridge improvement and routine maintenance costs are estimated to average approximately \$1.20 per square foot per year. Currently no new funding source has been identified to fund these maintenance costs.

Council District(s):
 District 1
 District 2
 District 3
 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						318,300 431,300 60,800 2,382,600 3,193,000
PROJECT TOTAL	0	0	0	0	0	3,193,000
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				Total
Unfunded UNF						3,193,000 3,193,000
REVENUE TOTAL	0	0	0	0	0	3,193,000

CITY OF MORENO VALLEY
 Capital Improvement Plan - Project Details
 FYs 2021-2026 and Beyond

Project Title: Kalmia Avenue Bridge / 300 Ft West of Quincy Street

Department / Division: Public Works Department / Capital Projects Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:

Project Description:
 The project will involve the design and construction of a bridge on Kalmia Avenue 300 Ft west of Quincy Street.

Justification or Significance of Improvement:
 This master drainage facility will convey storm run-off.

Estimated Maintenance Costs:
 Bridge improvement and routine maintenance costs are estimated to average approximately \$1.20 per square foot per year. Currently no new funding source has been identified to fund these maintenance costs.

Council District(s):
 District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total	
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025		
Prelim. Eng. / Environ. Design Right of Way Construction Other						210,200 285,500 52,200 1,575,900 2,123,800	
PROJECT TOTAL	0	0	0	0	0	2,123,800	
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				FY 2025/2026 and Beyond	Total
Unfunded UNF						2,123,800	2,123,800
REVENUE TOTAL	0	0	0	0	0	2,123,800	2,123,800

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Kitching Street Bridge / Perris Valley Storm Drain Lateral A

Department / Division: Public Works Department / Land Development Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:

Project Description:
The Kitching Bridge over Perris Valley Storm Drain Lateral A will fill in a missing link over the channel for north-south access.

Justification or Significance of Improvement:
The Kitching Street Bridge over Perris Valley Channel Lateral A will fill in a missing link over the channel for north-south access.

Estimated Maintenance Costs:
Bridge improvement and routine maintenance costs are estimated to average approximately \$1.20 per square foot per year. Currently no new funding source has been identified to fund these maintenance costs.

Council District(s):
 District 1
 District 2
 District 3
 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						60,800 243,000 364,500 2,916,000 60,800
PROJECT TOTAL	0	0	0	0	0	3,645,100
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	Total
DIF Arterial Street (2901) 3301.UNF						3,645,100
REVENUE TOTAL	0	0	0	0	0	3,645,100

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Kitching Street Bridge / Perris Valley Storm Drain Lateral B

Department / Division: Public Works Department / Land Development Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:

Project Description:
The Kitching Bridge over Perris Valley Storm Drain Lateral B will fill in a missing link over the channel for north-south access.

Justification or Significance of Improvement:
The Kitching Street Bridge over Perris Valley Channel Lateral B will fill in a missing link over the channel for north-south access.

Estimated Maintenance Costs:
Bridge improvement and routine maintenance costs are estimated to average approximately \$1.20 per square foot per year. Currently no new funding source has been identified to fund these maintenance costs.

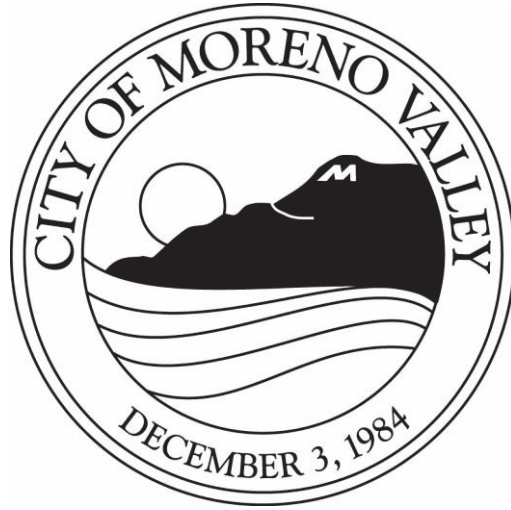
Council District(s):
 District 1
 District 2
 District 3
 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						60,800 243,000 364,500 2,916,000 60,800
PROJECT TOTAL	0	0	0	0	0	3,645,100
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				Total
DIF Arterial Street (2901) 3301.UNF						3,645,100
REVENUE TOTAL	0	0	0	0	0	3,645,100

**CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond**

<u>Project Name</u>	<u>Page #</u>
<i>Buildings</i>	
<i>Unfunded Projects</i>	
Animal Services New Parcel Property Improvements	B-17
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Gilman Fire Station	B-21
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CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond



CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Animal Services New Parcel Property Improvements

Department / Division: Administrative Services Department / Animal Services Division

Project Status:
 New
 Deleted
 In Progress
 On Hold
 Completed

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Description:

This project includes grading and construction of a block wall around the perimeter of newly purchased land. The project is to include partial paving of approximately one-fourth (1/4) to one-third (1/3) of 1.63 acres.

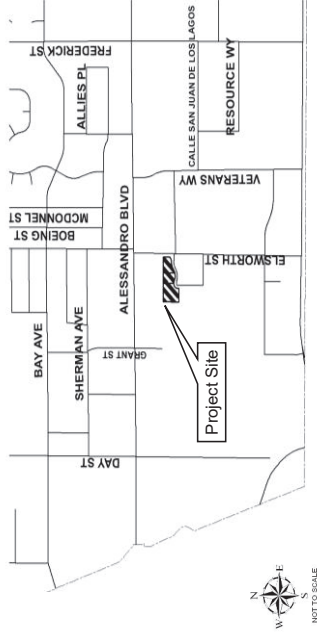
Justification or Significance of Improvement:

Improvements are necessary for any use by Animal Services, i.e., vehicle parking and storage.

Estimated Maintenance Costs:

Parking lot maintenance costs are estimated to average approximately \$3,500 per acre of paved parking lot per year. Currently no new funding source has been identified to fund these maintenance costs.

Project Location Map:



Council District(s):

District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						12,200 24,300 206,600
PROJECT TOTAL	0	0	0	0	243,100	243,100
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				Total
Unfunded UNF						243,100
REVENUE TOTAL	0	0	0	0	243,100	243,100

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Cottonwood Park Fire Station

Department / Division: Fire Department / Capital Projects Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:

Project Description:
 The Fire Station 110 project will include land acquisition, design, and construction for an essential facility, along with inspection and project management to oversee the construction phase. The new fire station will be constructed on 1.5 acres. This project was previously funded as Fire Services Capital Projects.

Land Acquisition: Land is owned by the former Redevelopment Agency.
Design: May 2008 to February 2009 - (Partially completed - project on hold)
Construction: FY 2021/2022 and Beyond

Justification or Significance of Improvement:
 Response time will be reduced with the new fire station.

Estimated Maintenance Costs:
 Annual average building maintenance costs are estimated at approximately \$9/SF. Although actual maintenance costs may vary, this estimated cost is based on an industry accepted standard maintenance cost. Currently no new funding source has been identified to fund these maintenance costs.

Council District(s):
 District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget					Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other							60,800 315,900 631,800 7,205,000
PROJECT TOTAL	0	0	0	0	0	8,213,500	8,213,500

FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024					Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	
Fire Services (3005) 3005.UNF							8,213,500
REVENUE TOTAL	0	0	0	0	0	8,213,500	8,213,500

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Fire Station 65 Relocation

Department / Division: Fire Department / Capital Projects Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:

Project Description:
 The Fire Station 65 Relocation project includes land acquisition, design, and construction of an essential facility. The new fire station will be constructed on a 1.5 acre site, at the northeast corner of Brodiaea Avenue and Rebecca Street. The new fire station will be a standard three apparatus bay fire station.

Land Acquisition: Completed in May 2012
 Design: Subject to availability of funds
 Construction: Subject to availability of funds

Justification or Significance of Improvement:
 Response time will be reduced with the new fire station.

Estimated Maintenance Costs:
 Annual average building maintenance costs are estimated at approximately \$9/SF. Although actual maintenance costs may vary, this estimated cost is based on an industry accepted standard maintenance cost. Currently no new funding source has been identified to fund these maintenance costs.

Council District(s):
 District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						
PROJECT TOTAL	0	0	0	0	8,553,600	8,553,600
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				Total
Fire Services (3005) 3005.UNF						
REVENUE TOTAL	0	0	0	0	8,553,600	8,553,600

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Fire Station (Future) Land Acquisition</p> <p>Department / Division: Fire Department / Capital Projects Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input checked="" type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>					
<p>Project Description: The location for future fire station is yet to be determined. Location depends on the City's residential and commercial development over the next 5 - 10 years.</p> <p>Justification or Significance of Improvement: The purpose of this project is to provide emergency services to newly constructed residences and commercial buildings.</p> <p>Estimated Maintenance Costs: Annual average building maintenance costs are estimated at approximately \$9/SF. Although actual maintenance costs may vary, this estimated cost is based on an industry accepted standard maintenance cost. Currently no new funding source has been identified to fund these maintenance costs.</p> <p align="center">TBD</p>							
<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>							
<p>FY 21/22 - FY 22/23 Budget</p>							
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other						897,900 897,900	897,900 897,900
PROJECT TOTAL	0	0	0	0	0	897,900 897,900	897,900 897,900
<p>FUNDING SOURCE</p>							
Unfunded UNF						897,900	897,900
REVENUE TOTAL	0	0	0	0	0	897,900 897,900	897,900 897,900

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Gilman Fire Station	Project Status: <input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold	Project Priority in CIP Category: <input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)
Department / Division: Fire Department / Capital Projects Division		
Project Description: The location for this station is yet to be determined. Location depends on the City's residential and commercial development over the next 5 - 10 years. This fire station will be constructed and equipped per development agreement in the area. Justification or Significance of Improvement: This project would provide emergency services to newly constructed residential and commercial buildings in the area. Estimated Maintenance Costs: Annual average building maintenance costs are estimated at approximately \$9/SF. Although actual maintenance costs may vary, this estimated cost is based on an industry accepted standard maintenance cost. Currently no new funding source has been identified to fund these maintenance costs.		
TBD		
Project Location Map:		
Council District(s): <input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4		

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						103,300 182,300 6,074,300 1,215,000 7,574,900
PROJECT TOTAL	0	0	0	0	0	7,574,900

FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Unfunded UNF						7,574,900
REVENUE TOTAL	0	0	0	0	0	7,574,900

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Industrial Fire Station

Department / Division: Fire Department / Capital Projects Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:

Project Description:
 The Industrial Fire Station project includes land acquisition, design, and construction of an essential facility. The new fire station and drill tower will be constructed on an approximately 2.5 acre site.

Land Acquisition: Completed in April 2012
 Design: Subject to availability of funds
 Construction: Subject to availability of funds

Justification or Significance of Improvement:
 Response time will be reduced with the new fire station.

Estimated Maintenance Costs:
 Annual average building maintenance costs are estimated at approximately \$10.00 / square foot. Although actual maintenance costs may vary, this estimated cost is based on an industry accepted standard maintenance cost. Funding sources also vary, depending on the type of building, but the primary source is the General Fund.

PROJECT PHASE Prelim. Eng. / Environ. Design Right of Way Construction Other	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
PROJECT TOTAL	0	0	0	0	0	12,150,000

FUNDING SOURCE Unfunded UNF	Budget FY 2020/2021	FY 2021/2022 - 2022/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
	0	0	0	0	0	12,150,000

Council District(s):
 District 1
 District 2
 District 3
 District 4

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Infill Fire Station</p> <p>Department / Division: Fire Department / Capital Projects Division</p>	<p>Project Status:</p> <p><input type="checkbox"/> New <input type="checkbox"/> Deleted</p> <p><input type="checkbox"/> In Progress <input checked="" type="checkbox"/> On Hold</p> <p><input type="checkbox"/> Completed</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr)</p> <p><input type="checkbox"/> Necessary (Start within 1 to 3 yrs)</p> <p><input type="checkbox"/> Desirable (Start within 3 to 5 yrs)</p> <p><input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>
<p>Project Location Map:</p>		

Project Description:
The Fire Station will include design and construction for an essential facility, along with inspection and project management to oversee the construction phase. The new fire station will be constructed on 1.32 acres.

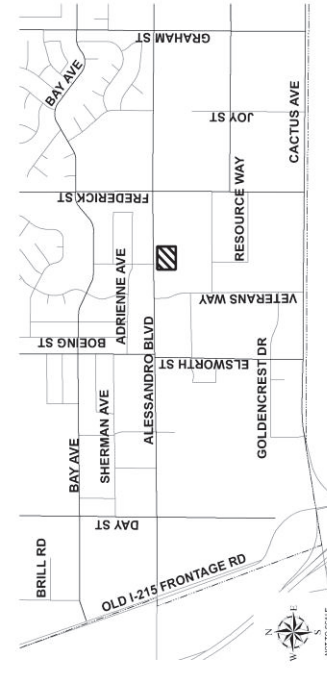
Land Acquisition: Completed in March 2021 (northwest corner of Atwood Avenue and Liberty Lane)
Design: Subject to availability of funds
Construction: Subject to availability of funds

Justification or Significance of Improvement:
Response time will be reduced with the new fire station.

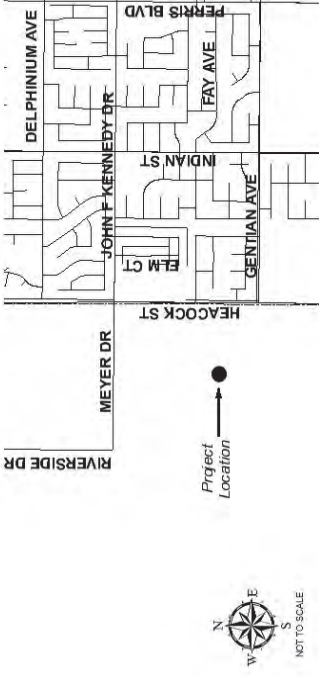
Estimated Maintenance Costs:
Annual average building maintenance costs are estimated at approximately \$9/SF. Although actual maintenance costs may vary, this estimated cost is based on an industry accepted standard maintenance cost. Currently no new funding source has been identified to fund these maintenance costs.

		FY 21/22 - FY 22/23 Budget					
PROJECT PHASE	Budget	FY 2021/2022	FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design						60,800	60,800
Right of Way Construction	435,000					315,900	315,900
Other						631,800	631,800
PROJECT TOTAL	435,000	0	0	0	0	8,213,500	8,213,500
		FY 21/22 - FY 22/23 Budget					
FUNDING SOURCE	Budget	FY 2021/2022	FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Fire Services (2903)							
803 0049-3005	435,000					8,213,500	8,213,500
3005.UNF							
REVENUE TOTAL	435,000	0	0	0	0	8,213,500	8,213,500

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Main Library		Project Status: <input type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed <input type="checkbox"/> Deleted <input checked="" type="checkbox"/> On Hold	Project Priority in CIP Category: <input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)
Department / Division: Economic Development Department / Capital Projects Division		Project Location Map: 	
<p>Project Description: The proposed library involves design of a 70,300 sq. ft. building. The building may be constructed in two (2) phases - a 38,800 sq. ft. building in the first phase followed at a later unknown date by an addition of 31,500 sq. ft. Construction includes all associated site civil, facilities, street improvements, mechanical, electrical, plumbing, HVAC, furniture and furnishings, landscaping, etc. Design: Phase I & II (Completed) This project was previously funded under Facility Construction Fund.</p> <p>Justification or Significance of Improvement: The purpose of this project is to meet the community demands of an essential facility to serve the Moreno Valley community.</p> <p>Estimated Maintenance Costs: Annual average building maintenance costs are estimated at approximately \$9/SF. Although actual maintenance costs may vary, this estimated cost is based on an industry accepted standard maintenance cost. Currently no new funding source has been identified to fund these maintenance costs.</p>			
Council District(s): <input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4			
PROJECT PHASE		FY 21/22 - FY 22/23 Budget	
Prelim. Eng. / Environ. Design	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023
Right of Way Construction			
Other			
PROJECT TOTAL	0	0	0
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023
Gen. City (3000) 3000.UNF			
REVENUE TOTAL	0	0	0
		FY 2023/2024	FY 2024/2025
		FY 2025/2026 and Beyond	Total
		0	0
		0	182,300
		0	39,912,800
		0	40,095,100
		0	40,095,100
		0	40,095,100
		0	40,095,100

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: March Air Reserve Base Hobby Shop Roof Replacement</p> <p>Department / Division: Administrative Services Department / Purchasing & Facilities Division</p>	<p>Project Status:</p> <p><input checked="checked" type="checkbox"/> New <input type="checkbox"/> Deleted <input type="checkbox"/> In Progress <input type="checkbox"/> On Hold <input type="checkbox"/> Completed</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input checked="checked" type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>					
<p>Project Location Map:</p>  <p>Project Location</p> <p style="text-align: center;"><small>NOT TO SCALE</small></p>							
<p>Project Description: The City occupies approximately one-third of this building. The March Joint Powers Authority occupies the other two-thirds. The roof was evaluated two years ago and found to be in such disrepair that quotes were obtained to replace it. The cost went beyond the Air Force's budget and repairs were not pursued. The roof is now in such bad shape, it leaks in several locations. Continued roof leaks will cause interior damages which will increase future costs to repair or remodel the building.</p> <p>Justification or Significance of Improvement: The roof is significantly deteriorated and leaks in numerous areas. Damage to the interior walls, ceilings and insulation is occurring. This roof needs to be replaced as it is beyond economic repair.</p> <p>Estimated Maintenance Costs: Annual average building maintenance costs are estimated at approximately \$9/SF. Although actual maintenance costs may vary, this estimated cost is based on an industry accepted standard maintenance cost. Currently no new funding source has been identified to fund these maintenance costs.</p>							
<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>							
<p>FY 21/22 - FY 22/23 Budget</p>							
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other						151,900	151,900
PROJECT TOTAL	0	0	0	0	0	151,900	151,900
<p>FUNDING SOURCE</p> <p>Facilities Int Svc (7310) 7310.UNF</p>			New Request FY 2021/2022	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
						151,900	151,900
REVENUE TOTAL	0	0	0	0	0	151,900	151,900

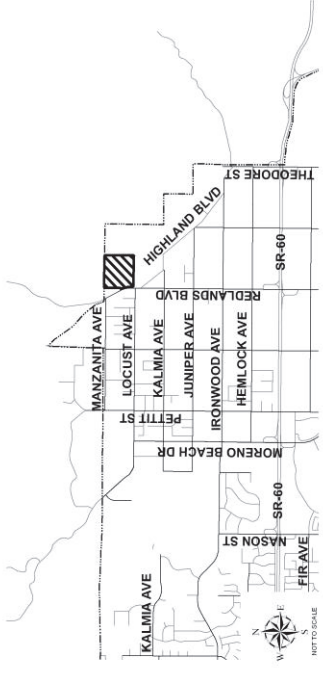
CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Moreno Valley Equestrian Center - Restroom and Information Center

Department / Division: Parks & Community Services Department / Parks Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:


Council District(s):
 District 1 District 2 District 3 District 4

Project Description:
 This project is for the design and construction of a restroom and information center at the Moreno Valley Equestrian Center, located on the northeast corner of Redlands Boulevard and Locust Street. This project was previously funded under Parks & Recreation Capital Projects.

Based on Council direction at the June 30, 2009 City Council meeting, the project is on hold.

Justification or Significance of Improvement:

This project will help to better serve the community.

Estimated Maintenance Costs:

Annual average building maintenance costs are estimated at approximately \$9/SF. Although actual maintenance costs may vary, this estimated cost is based on an industry accepted standard maintenance cost. Currently no new funding source has been identified to fund these maintenance costs.

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						
PROJECT TOTAL	0	0	0	0	0	789,800
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				Total
Quimby In-Lieu (2019) 3016.UNF						
REVENUE TOTAL	0	0	0	0	0	789,800

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Northeast Fire Station		Project Status: <input type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed <input type="checkbox"/> Deleted <input checked="" type="checkbox"/> On Hold	Project Priority in CIP Category: <input type="checkbox"/> Essential (Start within 1 yr) <input checked="" type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)				
Department / Division: Fire Department / Capital Projects Division							
Project Description: This station will be sited in the northeast area of the City. Land Acquisition: On hold Design: Subject to available funding Construction: Subject to available funding							
Justification or Significance of Improvement: The project will provide emergency services to newly constructed residential and commercial buildings in the area. TBD							
Estimated Maintenance Costs: Annual average building maintenance costs are estimated at approximately \$9/SF. Although actual maintenance costs may vary, this estimated cost is based on an industry accepted standard maintenance cost. Currently no new funding source has been identified to fund these maintenance costs.							
Council District(s): <input type="checkbox"/> District 1 <input checked="" type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4							
FY 21/22 - FY 22/23 Budget							
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other				729,000		103,300 941,600 729,000 7,508,700	103,300 941,600 729,000 7,508,700
PROJECT TOTAL	0	0	0	729,000	0	8,553,600	9,282,600
FUNDING SOURCE							
Fire Services C.P. (2903) 3005.UNF				729,000		8,553,600	9,282,600
REVENUE TOTAL	0	0	0	729,000	0	8,553,600	9,282,600

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Parks Community Recreation Buildings</p> <p>Department / Division: Parks & Community Services Department / Parks Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>					
<p>Project Description: This project will fund the addition of new buildings, as needed.</p> <p>Justification or Significance of Improvement: The improvements are necessary to better serve the community as it continues to grow and buildings age.</p> <p>Estimated Maintenance Costs: Annual average building maintenance costs are estimated at approximately \$10/SF. Although actual maintenance costs may vary, this estimated cost is based on an industry accepted standard maintenance cost. Currently no new funding source has been identified to fund these maintenance costs.</p> <p align="center">Various Park Sites</p>							
<p>Project Location Map:</p>							
<p>Council District(s):</p> <p><input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input checked="" type="checkbox"/> District 4</p>							
FY 21/22 - FY 22/23 Budget							
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other						103,300 182,300 18,738,900	103,300 182,300 18,738,900
PROJECT TOTAL	0	0	0	0	0	19,024,500	19,024,500
FUNDING SOURCE							
Unfunded UNF						19,024,500	19,024,500
REVENUE TOTAL	0	0	0	0	0	19,024,500	19,024,500

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Photovoltaic System for Fire Station 2, Fire Station 6, and Fire Station 58</p> <p>Department / Division: Fire Department / Capital Projects Division</p>		<p>Project Status:</p> <input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold		<p>Project Priority in CIP Category:</p> <input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input checked="" type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)			
<p>Project Description: This project will construct the Photovoltaic (Solar Energy) Systems at Fire Station 2 and Fire Station 6. An analysis was conducted and it was determined that a fire station with solar power is saving approximately 66% on electric utility costs. It is cost effective to install solar panels for electricity and potentially for water heating. This project includes the investigation of the feasibility of a Photovoltaic System at Fire Station 58.</p> <p>Justification or Significance of Improvement: The project will install solar panels for electricity at Fire Station 2, Fire Station 6, and Fire Station 58. Estimated saving is 66% on electric utility cost.</p> <p>Estimated Maintenance Costs: Annual average building maintenance costs are estimated at approximately \$10 per square foot. Annual average solar system maintenance cost is estimated at \$1,000/system. Actual maintenance costs may vary, as these estimated maintenance costs are based on historical maintenance costs for City buildings. Currently no new funding source has been identified to fund these maintenance costs. Additional costs may also be incurred for specialized equipment.</p>		<p>Project Location Map:</p>					
		<p>Council District(s):</p> <input checked="" type="checkbox"/> District 1 <input checked="" type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4					
		<p align="center">FY 21/22 - FY 22/23 Budget</p>					
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other					97,200 388,800	6,100 6,100	97,200 388,800 6,100
PROJECT TOTAL	0	0	0	0	486,000	6,100	492,100
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Fire Services C.P. (2903) 3005.UNF MVU 6011.UNF					486,000	6,100	486,000 6,100
REVENUE TOTAL	0	0	0	0	486,000	6,100	492,100

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Public Safety Building Conversion - Phase I</p> <p>Department / Division: Fire Department / Capital Projects Division</p>	<p>Project Status:</p> <p><input type="checkbox"/> New <input type="checkbox"/> Deleted</p> <p><input type="checkbox"/> In Progress <input checked="" type="checkbox"/> On Hold</p> <p><input type="checkbox"/> Completed</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr)</p> <p><input checked="" type="checkbox"/> Necessary (Start within 1 to 3 yrs)</p> <p><input type="checkbox"/> Desirable (Start within 3 to 5 yrs)</p> <p><input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>							
<p>Project Location Map:</p>									
<p>Project Description:</p> <p>Anticipated planning efforts for the relocation/expansion of the Special Enforcement, POP, Community Services, and Accounting and Finance Divisions is to be determined depending on availability of funds.</p> <p>Phase I: Phase I of the PSB Expansion includes new 2 story building, sally port and remodeling portion of existing PSB. Building remodeling/renovation of existing men's and women's locker rooms and gym room have been completed.</p> <p>Justification or Significance of Improvement:</p> <p>Expansion of the Public Safety Building is anticipated to meet demands of Public Safety personnel resulting from current growth and anticipated population growth through City build-out.</p> <p>Estimated Maintenance Costs:</p> <p>Annual average building maintenance costs are estimated at approximately \$9/SF. Although actual maintenance costs may vary, this estimated cost is based on an industry accepted standard maintenance cost. Currently no new funding source has been identified to fund these maintenance costs.</p>									
<p>Council District(s):</p> <p><input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>									
<p>FY 21/22 - FY 22/23 Budget</p>									
PROJECT PHASE	Budget	New Request	New Request	FY 2021/2022	FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other						498,200 1,404,500	1,215,000 6,075,000	8,505,000 48,600,000	10,218,200 56,079,500
PROJECT TOTAL	0	0	0	0	0	1,902,700	7,290,000	57,105,000	66,297,700
FUNDING SOURCE	Budget	New Request	FY 2021/2022	FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total	
Facility Constr (3000) 3000.UNF					1,902,700	7,290,000	57,105,000	66,297,700	
REVENUE TOTAL	0	0	0	0	1,902,700	7,290,000	57,105,000	66,297,700	

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Public Safety Building Expansion - Phase II & III

Department / Division: Fire Department / Capital Projects Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:

Project Description:
 Anticipated planning efforts for the relocation/expansion of the Special Enforcement, Investigation, POP, Community Services, and Accounting and Finance Divisions is to be determined depending on availability of funds.

Phase II: New 2 story building - Lobby and Administration
 Remodel existing buildings including improvement of Court yard and conference rooms

Phase III: New Parking Structure
 Remodel of existing new 2 story building for Evidence, Logistics, and Crime Scene Divisions.

Justification or Significance of Improvement:
 Expansion of the Public Safety Building is anticipated to meet demands of Public Safety personnel resulting from current growth and anticipated population growth through City build-out.

Estimated Maintenance Costs:
 Annual average building maintenance costs are estimated at approximately \$9/SF. Although actual maintenance costs may vary, this estimated cost is based on an industry accepted standard maintenance cost. Currently no new funding source has been identified to fund these maintenance costs.

Council District(s):
 District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						
PROJECT TOTAL	0	0	0	0	73,143,000	73,143,000

FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Facility Constr (3000) 3000.UNF						
REVENUE TOTAL	0	0	0	0	73,143,000	73,143,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Redlands Boulevard Fire Station	Project Status: <input type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed <input type="checkbox"/> Deleted <input checked="" type="checkbox"/> On Hold	Project Priority in CIP Category: <input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)
Department / Division: Fire Department / Capital Projects Division		
Project Description: The Redlands Boulevard Fire Station project includes land acquisition, design, and construction of an essential facility. The new fire station will be constructed on an approximately 1.5 acre site. Design and construction is anticipated to occur during FY 2018/2019. Land Acquisition: Completed in February 2012 Right of Way Land Subdivision: June 2014 Design: Subject to availability of funds Construction: Subject to availability of funds		
Justification or Significance of Improvement: The fire station is planned due to development on the southeast side of Moreno Valley. Response time will be reduced with the construction of a new fire station.		
Estimated Maintenance Costs: Annual average building maintenance costs are estimated at approximately \$9/SF. Although actual maintenance costs may vary, this estimated cost is based on an industry accepted standard maintenance cost. Currently no new funding source has been identified to fund these maintenance costs.		
Project Location Map:		
Council District(s): <input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4		

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other					1,044,900 7,508,700	1,044,900 7,508,700
PROJECT TOTAL	0	0	0	0	8,553,600	8,553,600

FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Fire Services C.P. (2903) 3005.UNF					8,553,600	8,553,600
REVENUE TOTAL	0	0	0	0	8,553,600	8,553,600

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Remodel Fire Station 65 - Indian Street and John F. Kennedy Drive

Department / Division: Fire Department / Capital Projects Division

Project Status:
 New
 Deleted
 In Progress
 On Hold
 Completed

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Description:

Fire Station 65 requires renovations due to building code requirements and expanded use.

Improvements will include bathroom renovations to comply with Americans with Disabilities Act (ADA) requirements; privatization of sleeping quarters to provide separation between the individual beds for privacy and modesty; kitchen expansion and renovations with new appliances; construction of an exercise room; and ADA-required parking updates, signage, and path of travel to meet California Code Title 24 requirements.

Justification or Significance of Improvement:

The remodeling work is necessary to meet recent changes in building code requirements and to provide needed services to the community due to population growth.

Estimated Maintenance Costs:

Annual average building maintenance costs are estimated at approximately \$10 / square foot. Although actual maintenance costs may vary, this estimated cost is based on an industry accepted standard maintenance cost. Funding sources also vary, depending on the type of building, but the primary source is the General Fund.

Project Location Map:



Council District(s):

District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total	
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond		
Prelim. Eng. / Environ. Design Right of Way Construction Other						120,000 700,000 820,000	
PROJECT TOTAL	0	0	0	0	0	820,000	
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				FY 2025/2026 and Beyond	Total
Fire Services C.P. (2903) 3005.UNF						820,000	820,000
REVENUE TOTAL	0	0	0	0	0	820,000	820,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Satellite Police Station in the Southeast Portion of the City</p> <p>Department / Division: Police Department / Capital Projects Division</p>	<p>Project Status:</p> <input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold	<p>Project Priority in CIP Category:</p> <input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)					
<p>Project Location Map:</p> <p align="center">TBD</p>							
<p>Justification or Significance of Improvement: This project will improve response time.</p> <p>Estimated Maintenance Costs: Annual average building maintenance costs are estimated at approximately \$9/SF. Although actual maintenance costs may vary, this estimated cost is based on an industry accepted standard maintenance cost. Currently no new funding source has been identified to fund these maintenance costs.</p>							
<p>Council District(s):</p> <input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4							
<p>FY 21/22 - FY 22/23 Budget</p>							
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other						486,000 729,000 8,505,000	486,000 729,000 8,505,000
PROJECT TOTAL	0	0	0	0	0	9,720,000	9,720,000
<p>FUNDING SOURCE</p>							
Unfunded UNF						9,720,000	9,720,000
REVENUE TOTAL	0	0	0	0	0	9,720,000	9,720,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Security Alarm Replacement		Project Status: <input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold		Project Priority in CIP Category: <input type="checkbox"/> Essential (Start within 1 yr) <input checked="" type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)			
Department / Division: Public Works Department / Maintenance & Operations Division		Project Location Map: 					
Project Description: Upgrade security alarm panels, sensors, and applicable equipment.		Council District(s): <input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4					
Locations: Animal Shelter Annex 1 City Hall Conference and Recreation Center (CRC) Emergency Operations Center (EOC) Public Safety Building (PSB) Senior Center Towingate Community Center							
Justification or Significance of Improvement: Facilities Maintenance performed an assessment report in 2018. Upgrading the security alarm was identified at eight facilities.							
Estimated Maintenance Costs: Annual average building maintenance costs are estimated at approximately \$10/SF. Although actual maintenance costs may vary, this estimated cost is based on an industry accepted standard maintenance cost. Funding sources also vary, depending on the type of building, but the primary source is the General Fund.							
Life-to-Date Expenditures Through FY 2019/2020: 0							
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other	0	0	0	707,825	707,825	0	1,415,650
PROJECT TOTAL	0	0	0	707,825	707,825	0	1,415,650
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Unfunded UNF	0	0	0	707,825	707,825	0	1,415,650
REVENUE TOTAL	0	0	0	707,825	707,825	0	1,415,650

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Senior Community Center #2</p> <p>Department / Division: Parks & Community Services Department / Parks Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>
<p>Project Location Map:</p> <p style="text-align: center;">TBD</p>		
<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>		

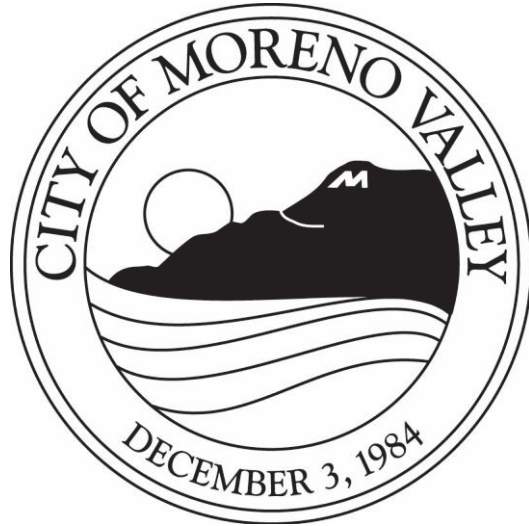
PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						
PROJECT TOTAL	0	0	0	0	0	12,000,000 12,000,000
FUNDING SOURCE	Budget FY 2020/2021					Total
Unfunded UNF						12,000,000 12,000,000
REVENUE TOTAL	0	0	0	0	0	12,000,000 12,000,000

CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond

<u>Project Name</u>	<u>Page #</u>
<i>Drainage</i>	
<i>Unfunded Projects</i>	
Cactus Avenue Channel Improvements	D-13
Perris Boulevard / John F. Kennedy Drive Crossgutter	D-14
Perris Boulevard Storm Drain (Line A-1) / PVSD Lateral A to Suburban Lane	D-15
Perris Boulevard Storm Drain (Line B-1) / Rivard Road to San Michele Road	D-16
Storm Drain Line GG, Edgemont / Old 215 Frontage Road to Day Street	D-17
SR-60 Culvert Crossing Tie-ins between Indian Street and SR-60 Perris Boulevard Off-Ramp	D-18
SR-60 / Quincy Street Storm Drain	D-19

Attachment: Exhibit A - Proposed CIP FYs 2021/22 - 2022/23 (4417 : Capital Improvement Plan Fiscal Years 2021/22 - 2022/23)

CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond



CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

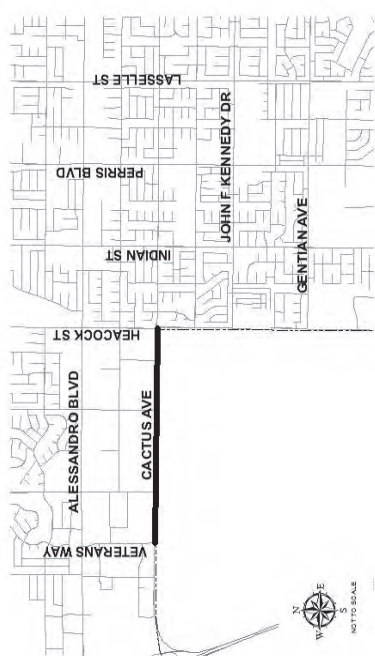
Project Title: Cactus Avenue Channel Improvements

Department / Division: Public Works Department / Capital Projects Division

Project Status:
 New
 Deleted
 In Progress
 On Hold
 Completed

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:



Justification or Significance of Improvement:
This project will provide improved drainage.

Estimated Maintenance Costs:
Riverside County Flood & Water Conservation District will maintain the channel upon project completion.

Council District(s):
 District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget			Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other					243,000 972,000 20,412,000 21,627,000
PROJECT TOTAL	0	0	0	0	21,627,000
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024 and Beyond			Total
Unfunded UNF					21,627,000
REVENUE TOTAL	0	0	0	0	21,627,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Perris Boulevard / John F. Kennedy Drive Crossgutter</p> <p>Department / Division: Public Works Department / Capital Projects Division</p> <p>Project Description: This project will improve the crossgutter and the intersection of Perris Boulevard and John F. Kennedy Drive.</p> <p>Justification or Significance of Improvement: This project will provide improved drainage.</p> <p>Estimated Maintenance Costs: Annual average costs associated with storm drain maintenance are estimated at approximately \$121 per catch basin. This does not include actual catch basin and/or pipeline replacement, which typically have lifespans of 70 to 100 years. Although actual maintenance costs may vary, these estimated maintenance costs are based on historical maintenance costs for the City of Moreno Valley's storm drain infrastructure. Currently no new funding source has been identified to fund these maintenance costs.</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> Deleted <input type="checkbox"/> In Progress <input type="checkbox"/> On Hold <input type="checkbox"/> Completed</p> <p>Project Location Map:</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>	<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>																																																						
<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2"></th> <th colspan="4" style="text-align: center;">FY 21/22 - FY 22/23 Budget</th> </tr> <tr> <th style="width:30%;"></th> <th style="width:10%;"></th> <th style="width:10%;">New Request FY 2021/2022</th> <th style="width:10%;">New Request FY 2022/2023</th> <th style="width:10%;">New Request FY 2023/2024</th> <th style="width:10%;">New Request FY 2024/2025</th> <th style="width:10%;">New Request FY 2025/2026 and Beyond</th> <th style="width:10%;">Total</th> </tr> </thead> <tbody> <tr> <td>PROJECT PHASE Prelim. Eng. / Environ. Design Right of Way Construction Other</td> <td align="right">Budget FY 2020/2021</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td align="right">0</td> <td align="right">0</td> <td align="right">0</td> <td align="right">0</td> <td align="right">385,900</td> <td align="right">385,900</td> </tr> <tr> <td>FUNDING SOURCE Unfunded UNF</td> <td align="right">Budget FY 2020/2021</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td align="right">0</td> <td align="right">0</td> <td align="right">0</td> <td align="right">0</td> <td align="right">385,900</td> <td align="right">385,900</td> </tr> <tr> <td>REVENUE TOTAL</td> <td></td> <td align="right">0</td> <td align="right">0</td> <td align="right">0</td> <td align="right">0</td> <td align="right">385,900</td> <td align="right">385,900</td> </tr> </tbody> </table>						FY 21/22 - FY 22/23 Budget						New Request FY 2021/2022	New Request FY 2022/2023	New Request FY 2023/2024	New Request FY 2024/2025	New Request FY 2025/2026 and Beyond	Total	PROJECT PHASE Prelim. Eng. / Environ. Design Right of Way Construction Other	Budget FY 2020/2021									0	0	0	0	385,900	385,900	FUNDING SOURCE Unfunded UNF	Budget FY 2020/2021									0	0	0	0	385,900	385,900	REVENUE TOTAL		0	0	0	0	385,900	385,900
		FY 21/22 - FY 22/23 Budget																																																							
		New Request FY 2021/2022	New Request FY 2022/2023	New Request FY 2023/2024	New Request FY 2024/2025	New Request FY 2025/2026 and Beyond	Total																																																		
PROJECT PHASE Prelim. Eng. / Environ. Design Right of Way Construction Other	Budget FY 2020/2021																																																								
		0	0	0	0	385,900	385,900																																																		
FUNDING SOURCE Unfunded UNF	Budget FY 2020/2021																																																								
		0	0	0	0	385,900	385,900																																																		
REVENUE TOTAL		0	0	0	0	385,900	385,900																																																		

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

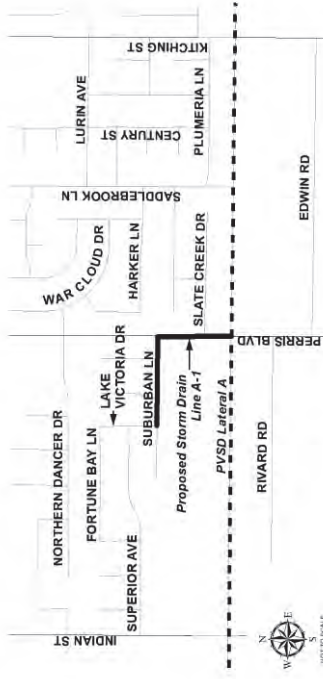
Project Title: Perris Boulevard Storm Drain (Line A-1) / PVSD Lateral A to Suburban Lane

Department / Division: Public Works Department / Capital Projects Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:



Project Description:
 This project will design and construct a storm drain line in Perris Boulevard from PVSD Lateral A to Suburban Lane and in Suburban Lane from Perris Boulevard to Lake Victoria Drive in the Sunnymead Master Drainage Plan (MDP).

Justification or Significance of Improvement:
 This project will provide improved drainage.

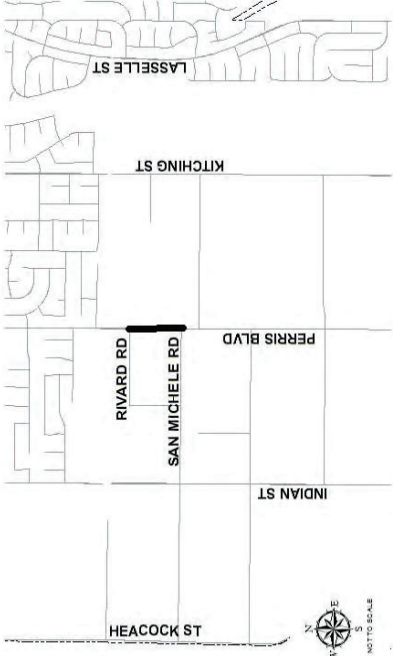
Estimated Maintenance Costs:

Annual average costs associated with storm drain maintenance are estimated at approximately \$121 per catch basin. This does not include actual catch basin and/or pipeline replacement, which typically have lifespans of 70 to 100 years. Although actual maintenance costs may vary, these estimated maintenance costs are based on historical maintenance costs for the City of Moreno Valley's storm drain infrastructure. Currently no new funding source has been identified to fund these maintenance costs.


Council District(s):
 District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						12,200 182,300 473,900
PROJECT TOTAL	0	0	0	0	668,400	668,400
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				Total
Unfunded UNF						668,400 668,400
REVENUE TOTAL	0	0	0	0	668,400	668,400

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Perris Boulevard Storm Drain (Line B-1) / Rivard Road to San Michele Road</p> <p>Department / Division: Public Works Department / Capital Projects Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>																
<p>Project Location Map:</p> 																		
<p>Project Description: This project will design and construct a storm drain line in Perris Boulevard from PVSD Lateral B to San Michele Road in the Perris Valley Master Drainage Plan.</p> <p>Justification or Significance of Improvement: This project will provide improved drainage.</p> <p>Estimated Maintenance Costs: Annual average costs associated with storm drain maintenance are estimated at approximately \$121 per catch basin. This does not include actual catch basin and/or pipeline replacement, which typically have lifespans of 70 to 100 years. Although actual maintenance costs may vary, these estimated maintenance costs are based on historical maintenance costs for the City of Moreno Valley's storm drain infrastructure. Currently no new funding source has been identified to fund these maintenance costs.</p>																		
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<p>FY 21/22 - FY 22/23 Budget</p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;"></td> <td style="width:10%; text-align: center;">New Request</td> <td style="width:10%; text-align: center;">FY 2021/2022</td> <td style="width:10%; text-align: center;">FY 2022/2023</td> <td style="width:10%; text-align: center;">FY 2023/2024</td> <td style="width:10%; text-align: center;">FY 2024/2025</td> <td style="width:10%; text-align: center;">FY 2025/2026 and Beyond</td> <td style="width:10%; text-align: center;">Total</td> </tr> <tr> <td></td> <td style="text-align: center;">0</td> <td></td> <td></td> <td style="text-align: center;">0</td> <td></td> <td style="text-align: center;">850,500</td> <td style="text-align: center;">850,500</td> </tr> </table>				New Request	FY 2021/2022	FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total		0			0		850,500	850,500
	New Request	FY 2021/2022	FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total											
	0			0		850,500	850,500											
<p>Funding Source</p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;"></td> <td style="width:10%; text-align: center;">New Request</td> <td style="width:10%; text-align: center;">FY 2021/2022</td> <td style="width:10%; text-align: center;">FY 2022/2023</td> <td style="width:10%; text-align: center;">FY 2023/2024</td> <td style="width:10%; text-align: center;">FY 2024/2025</td> <td style="width:10%; text-align: center;">FY 2025/2026 and Beyond</td> <td style="width:10%; text-align: center;">Total</td> </tr> <tr> <td>Unfunded UNF</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td style="text-align: center;">850,500</td> <td style="text-align: center;">850,500</td> </tr> </table>				New Request	FY 2021/2022	FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total	Unfunded UNF						850,500	850,500
	New Request	FY 2021/2022	FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total											
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<p>REVENUE TOTAL</p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;"></td> <td style="width:10%; text-align: center;">0</td> <td style="width:10%; text-align: center;">0</td> <td style="width:10%; text-align: center;">0</td> <td style="width:10%; text-align: center;">0</td> <td style="width:10%; text-align: center;">0</td> <td style="width:10%; text-align: center;">850,500</td> <td style="width:10%; text-align: center;">850,500</td> </tr> </table>				0	0	0	0	0	850,500	850,500								
	0	0	0	0	0	850,500	850,500											

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Storm Drain Line GG, Edgemont / Old 215 Frontage Road to Day Street</p> <p>Department / Division: Public Works Department / Capital Projects Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>																					
<p>Project Location Map:</p> 																							
<p>Project Description: This project involves the design and construction of storm drain Line GG in Sherman Avenue from Old 215 Frontage Road to Day Street in the West End Area Master Drainage Plan.</p> <p>Justification or Significance of Improvement: This project will provide improved drainage.</p> <p>Estimated Maintenance Costs: Annual average costs associated with storm drain maintenance are estimated at approximately \$121 per catch basin. This does not include actual catch basin and/or pipeline replacement, which typically have lifespans of 70 to 100 years. Although actual maintenance costs may vary, these estimated maintenance costs are based on historical maintenance costs for the City of Moreno Valley's storm drain infrastructure. Currently no new funding source has been identified to fund these maintenance costs.</p>																							
<p>Council District(s):</p> <p><input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>																							
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	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total																	
PROJECT PHASE Prelim. Eng. / Environ. Design Right of Way Construction Other					60,800 303,800 1,215,000	60,800 303,800 1,215,000																	
PROJECT TOTAL	0	0	0	0	1,579,600	1,579,600																	
<p>FUNDING SOURCE</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:30%;"></th> <th style="width:15%;">New Request FY 2021/2022</th> <th style="width:15%;">New Request FY 2022/2023</th> <th style="width:15%;">FY 2023/2024</th> <th style="width:15%;">FY 2024/2025</th> <th style="width:15%;">FY 2025/2026 and Beyond</th> <th style="width:10%;">Total</th> </tr> </thead> <tbody> <tr> <td>Unfunded UNF</td> <td></td> <td></td> <td></td> <td></td> <td>1,579,600</td> <td>1,579,600</td> </tr> <tr> <td>REVENUE TOTAL</td> <td align="right">0</td> <td align="right">0</td> <td align="right">0</td> <td align="right">0</td> <td align="right">1,579,600</td> <td align="right">1,579,600</td> </tr> </tbody> </table>				New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total	Unfunded UNF					1,579,600	1,579,600	REVENUE TOTAL	0	0	0	0	1,579,600	1,579,600
	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total																	
Unfunded UNF					1,579,600	1,579,600																	
REVENUE TOTAL	0	0	0	0	1,579,600	1,579,600																	

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: SR-60 Culvert Crossing Tie-ins between Indian Street and SR-60 Perris Boulevard Off-Ramp

Department / Division: Public Works Department / Capital Projects Division

Project Status:
 New
 Deleted
 In Progress
 On Hold
 Completed

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:

Justification or Significance of Improvement:
 This project will provide improved drainage within private properties.

Estimated Maintenance Costs:
 Annual average costs associated with storm drain maintenance are estimated at approximately \$121 per catch basin. This does not include actual catch basin and/or pipeline replacement, which typically have lifespans of 70 to 100 years. Although actual maintenance costs may vary, these estimated maintenance costs are based on historical maintenance costs for the City of Moreno Valley's storm drain infrastructure. Currently no new funding source has been identified to fund these maintenance costs.

Council District(s):
 District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						35,400 179,300 67,300 1,154,600
PROJECT TOTAL	0	0	0	0	1,436,600	1,436,600
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				FY 2025/2026 and Beyond
Unfunded UNF						1,436,600
REVENUE TOTAL	0	0	0	0	1,436,600	1,436,600

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: SR-60 / Quincy Street Storm Drain</p> <p>Department / Division: Public Works Department / Capital Projects Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>
<p>Project Location Map:</p>		
<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input checked="" type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>		

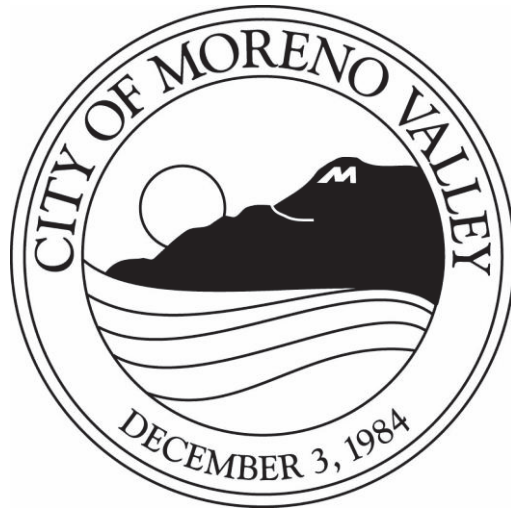
Project Description:
This project will involve the modification of existing drainage at Quincy Street under SR-60.

Justification or Significance of Improvement:
This project will provide improved drainage.

Estimated Maintenance Costs:
Annual average costs associated with storm drain maintenance are estimated at approximately \$121 per catch basin. This does not include actual catch basin and/or pipeline replacement, which typically have lifespans of 70 to 100 years. Although actual maintenance costs may vary, these estimated maintenance costs are based on historical maintenance costs for the City of Moreno Valley's storm drain infrastructure. Currently no new funding source has been identified to fund these maintenance costs.

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						374,200 623,300 4,954,800
PROJECT TOTAL	0	0	0	0	5,952,300	5,952,300
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				Total
Unfunded UNF						5,952,300
REVENUE TOTAL	0	0	0	0	5,952,300	5,952,300

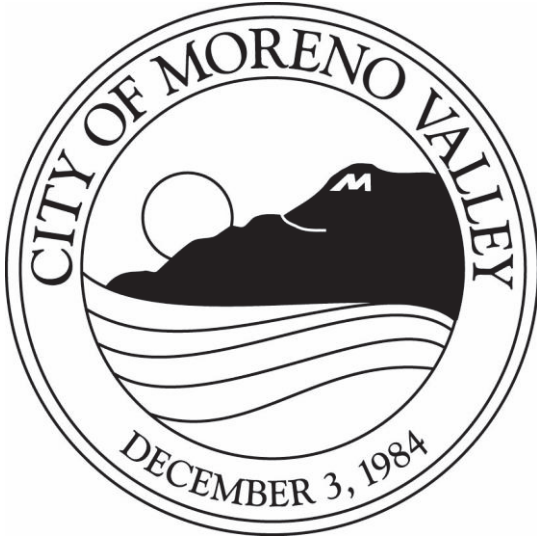
CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond



**CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond**

<u>Project Name</u>	<u>Page #</u>
<i>Electric Utility</i>	
<i>Unfunded Projects</i>	
Backbone System - Brodiaea Avenue between Quincy Street to Merwin Street	E-19
Capacity Increase at Moreno Valley Substation Phase 2	E-20
Conduit in SR-60 / Theodore Street Interchange	E-21
Moreno Beach Drive Line Extension from Oliver Street to John F. Kennedy Drive	E-22
Moreno Valley Library SCE to MVU Cutover	E-23
Moreno Valley Substation Battery Storage	E-24
Moreno Valley Substation Conduits and Feeders on Cottonwood Avenue and Oliver Street	E-25
Moreno Valley Substation Feeder Line - Rancho Belago 12kV Feeder, Phase 1 Substation / Cottonwood	E-26
MVU-0017 28 MVA Bank Increase, Phase 1 Substation	E-27
Veterans 33kV Substation	E-28

CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond



Attachment: Exhibit A - Proposed CIP FYs 2021/22 - 2022/23 (4417 : Capital Improvement Plan Fiscal Years 2021/22 - 2022/23)

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Backbone System - Brodiaea Avenue between Quincy Street to Merwin Street</p> <p>Department / Division: Public Works Department / Electric Utility Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>
<p>Project Description: This project will install approximately 5,000 linear feet underground backbone facilities along Brodiaea Avenue from Quincy Street to Merwin Street.</p> <p>Justification or Significance of Improvement: This project will support future growth of the World Logistics Center east of Merwin Street.</p> <p>Estimated Maintenance Costs: Ongoing maintenance costs are built into Moreno Valley Utility's rate structure as part of the cost to serve.</p>		
<p>Project Location Map:</p>		
<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>		

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other					85,100	85,100
PROJECT TOTAL	0	0	0	0	1,300,100	1,300,100
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				Total
Unfunded UNF					1,300,100	1,300,100
REVENUE TOTAL	0	0	0	0	1,300,100	1,300,100

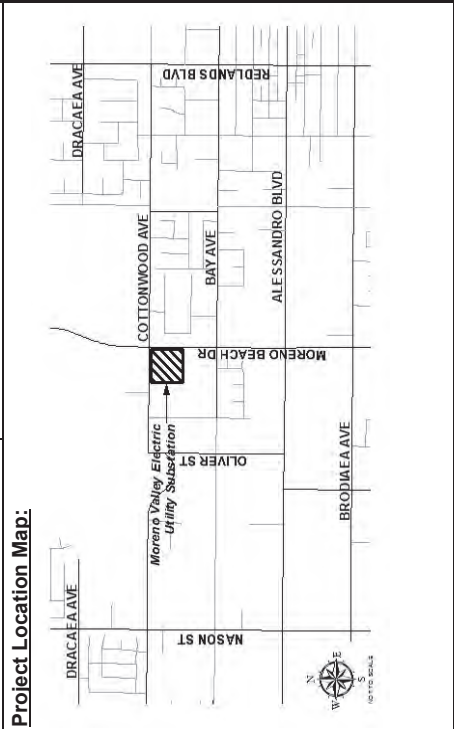
CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Capacity Increase at Moreno Valley Substation Phase 2

Department / Division: Public Works Department / Electric Utility Division

Project Status:
 New
 Deleted
 In Progress
 On Hold
 Completed

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)



Council District(s):
 District 1
 District 2
 District 3
 District 4


Project Description:
 This Project will increase substation capacity by adding a fourth 28 megavolt-ampere (MVA) Transformer.

Justification or Significance of Improvement:
 The substation capacity must be increased due to an increase in electrical demand in its services area.

Estimated Maintenance Costs:
 Ongoing maintenance costs are built into Moreno Valley Utility's rate structure as part of the cost to serve.

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						206,600 137,300 4,333,900 4,677,800
PROJECT TOTAL	0	0	0	0	0	4,677,800
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				FY 2025/2026 and Beyond
Unfunded UNF						4,677,800
REVENUE TOTAL	0	0	0	0	0	4,677,800

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Conduit in SR-60 / Theodore Street Interchange</p> <p>Department / Division: Public Works Department / Electric Utility Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input checked="" type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>
<p>Project Location Map:</p> 		
<p>Project Description: This project will install 5 inch conduits (6 total) during construction of new Bridge on Theodore Street over SR60 freeway.</p> <p>Justification or Significance of Improvement: This project is for future system expansion north of SR-60 freeway.</p> <p>Estimated Maintenance Costs: Ongoing maintenance costs are built into Moreno Valley Utilities rate structure as part of the cost to serve.</p>		
<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input checked="" type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>		

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other				6,100	121,500	6,100 121,500
PROJECT TOTAL	0	0	5,000	6,100	121,500	127,600
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				Total
Unfunded UNF				6,100	121,500	6,100 127,600
REVENUE TOTAL	0	0	5,000	6,100	121,500	127,600

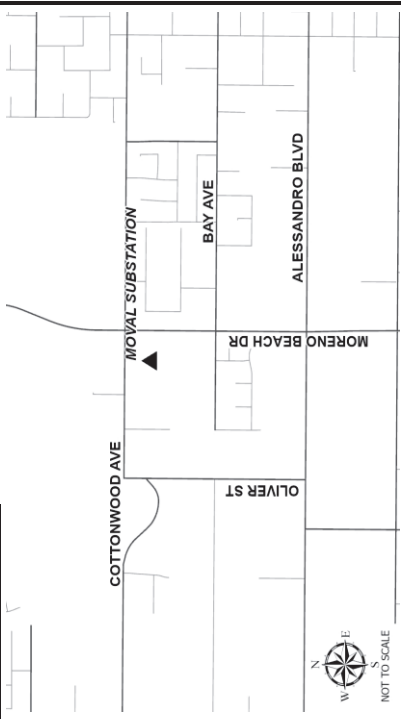
CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Moreno Beach Drive Line Extension from Oliver Street to John F. Kennedy Drive</p> <p>Department / Division: Public Works Department / Electric Utility Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input checked="" type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>					
<p>Project Location Map:</p>							
<p>Project Description: This project will install new backbone conduit and cable along Moreno Beach Drive from Oliver Street to John F. Kennedy Drive. There is a pavement moratorium along Moreno Beach Drive until 2023.</p> <p>Environmental: July 2023 - September 2023 Design: October 2023 - December 2023 Construction: January 2024 - June 2024</p> <p>Justification or Significance of Improvement: This will improve system reliability and provide a loop feed for the Rancho Belago apartments and future Via de Lago condos near Moreno Beach Drive and Oliver Street.</p> <p>Estimated Maintenance Costs: Ongoing maintenance costs are built into Moreno Valley Utilities rate structure as part of the cost to serve.</p>							
<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input checked="" type="checkbox"/> District 4</p>							
<p>Life-to-Date Expenditures Through FY 2019/2020: 0</p>							
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other				1,000 72,000 1,127,600			1,000 72,000 1,127,600
PROJECT TOTAL	0	0	0	1,200,600	0	0	1,200,600
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Unfunded UNF				1,200,600			1,200,600
REVENUE TOTAL	0	0	0	1,200,600	0	0	1,200,600

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Moreno Valley Library SCE to MVU Cutover</p> <p>Department / Division: Public Works Department / Electric Utility Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input checked="" type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>
<p>Project Description:</p> <p>This project will install new conduit, cable, and electrical facilities from Alessandro Boulevard. Moreno Valley Utility has a conduit stub that was installed as part of the Alessandro Cross-Town Tie Line Extension in order to transfer service from Southern California Edison (SCE) to Moreno Valley Utility.</p> <p>Environmental: July 2023 - September 2023 Design: October 2023 - December 2023 Construction: January 2024 - June 2024</p> <p>Justification or Significance of Improvement:</p> <p>SCE currently serves the Moreno Valley Branch Library from an overhead source feed that originates at their Alessandro Substation. MVU facilities are 100% underground and can provide a more reliable expectation of electrical service.</p> <p>Estimated Maintenance Costs:</p> <p>Ongoing maintenance costs are built into Moreno Valley Utilities rate structure as part of the cost to serve.</p>		
<p>Project Location Map:</p>		
<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>		
<p>Life-to-Date Expenditures Through FY 2019/2020: 0</p>		
	<p>New Request FY 2021/2022</p>	<p>New Request FY 2022/2023</p>
PROJECT PHASE	Budget FY 2020/2021	Budget FY 2023/2024
Prelim. Eng. / Environ. Design	5,000	10,000
Right of Way Construction	10,000	440,000
Other	440,000	440,000
PROJECT TOTAL	0	455,000
FUNDING SOURCE	New Request FY 2021/2022	New Request FY 2022/2023
Unfunded	0	0
UNF	0	0
REVENUE TOTAL	0	0

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Moreno Valley Substation Battery Storage</p> <p>Department / Division: Public Works Department / Electric Utility Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input checked="" type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>
<p>Project Description:</p> <p>This project proposes the installation of a battery storage system consisting of 6.8 megawatts of battery storage capacity with a 4 hour discharge duration. The energy storage will increase system reliability as stored energy in batteries can be used to offset peak loads and helps defer the purchase of an additional transformer at the Moreno Valley Substation.</p> <p>Environmental: July 2025 to September 2025 Design: October 2025 to December 2025 Construction: January 2026 to December 2026</p> <p>Justification or Significance of Improvement:</p> <p>The battery storage system will defer the purchase of another transformer at the Moreno Valley Substation.</p> <p>Estimated Maintenance Costs:</p> <p>Ongoing maintenance costs are built into Moreno Valley Utilities rate structure as part of the cost to serve.</p>		
<p>Project Location Map:</p> 		
<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>		

PROJECT PHASE	Budget FY 2020/2021	Life-to-Date Expenditures Through FY 2019/2020: 0				FY 21/22 - FY 22/23 Budget			
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total		
Prelim. Eng. / Environ. Design Right of Way Construction Other	0					16,000 80,000 9,128,000 9,224,000	16,000 80,000 9,128,000 9,224,000		
PROJECT TOTAL	0	0	0	0	0	9,224,000	9,224,000		9,224,000
FUNDING SOURCE	Budget FY 2020/2021							FY 2025/2026 and Beyond	Total
Unfunded UNF								9,224,000	9,224,000
REVENUE TOTAL	0	0	0	0	0	9,224,000	9,224,000		9,224,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Moreno Valley Substation Conduits and Feeders on Cottonwood Avenue and Oliver Street

Department / Division: Public Works Department / Electric Utility Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:

Justification or Significance of Improvement:
 This project will provide the underground infrastructure support for the expansion of Moreno Valley substation and support growth in the area.

Estimated Maintenance Costs:
 Ongoing maintenance costs are built into Moreno Valley Utility's rate structure as part of the cost to serve.

Council District(s):
 District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total	
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond		
Prelim. Eng. / Environ. Design Right of Way Construction Other						175,200	
PROJECT TOTAL	0	0	0	0	2,678,100	2,678,100	
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				FY 2025/2026 and Beyond	Total
Unfunded UNF						2,678,100	2,678,100
REVENUE TOTAL	0	0	0	0	0	2,678,100	2,678,100

**CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond**

<p>Project Title: Moreno Valley Substation Feeder Line - Rancho Belago 12KV Feeder, Phase 1 Substation / Cottonwood Valley Substation.</p> <p>Department / Division: Public Works Department / Electric Utility Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> Deleted <input type="checkbox"/> In Progress <input type="checkbox"/> On Hold <input type="checkbox"/> Completed</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>	<p>Project Location Map:</p>	
<p>Justification or Significance of Improvement: Installation of electric distribution infrastructure is required to provide service to new developments east of the Moreno Valley substation and for improved reliability.</p> <p>Estimated Maintenance Costs: Ongoing maintenance costs are built into Moreno Valley Utility's rate structure as part of the cost to serve.</p>				
<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>				
PROJECT PHASE		Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget	
Prelim. Eng. / Environ. Design			New Request FY 2021/2022	New Request FY 2022/2023
Right of Way Construction				
Other				
PROJECT TOTAL	0	0	0	0
FUNDING SOURCE		Budget FY 2020/2021	FY 2023/2024	FY 2024/2025
Unfunded UNF				
				FY 2025/2026 and Beyond
				Total
				712,000
			0	364,500
			0	347,500
			0	712,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: MVU-0017 28 MVA Bank Increase, Phase 1 Substation</p> <p>Department / Division: Public Works Department / Electric Utility Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>
<p>Project Location Map:</p>		
<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>		

Project Description:
This project will increase substation capacity by adding a third transformer and related 115 KV support structures and apparatus.

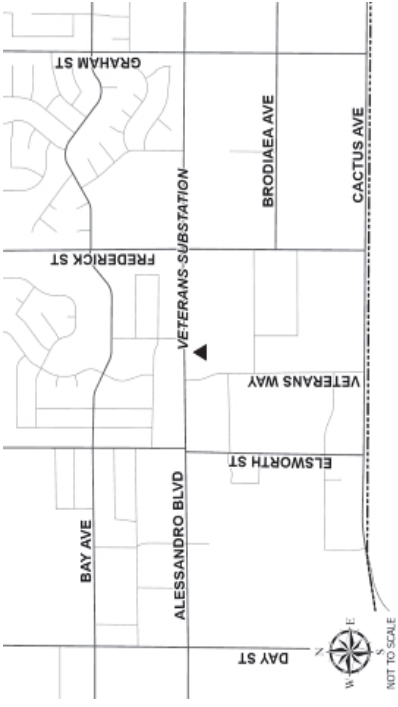
Justification or Significance of Improvement:
As electric demand and development increases, the substation capacity must be increased to keep up with demand requirements.

Estimated Maintenance Costs:
Ongoing maintenance costs are built into Moreno Valley Utility's rate structure as part of the cost to serve.

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						182,300 364,500 3,378,900
PROJECT TOTAL	0	0	0	0	0	3,925,700
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				FY 2025/2026 and Beyond
Unfunded UNF						3,925,700
REVENUE TOTAL	0	0	0	0	0	3,925,700

b

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Veterans 33kV Substation</p> <p>Department / Division: Public Works Department / Electric Utility Division</p>		<p>Project Status: <input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>		<p>Project Priority in CIP Category: <input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>			
<p>Project Description: Build a new 33kV Substation in the Centerpointe area within City Hall property by Alessandro Boulevard identical to MOVAL South 33kV. Veterans Substation will be essential to serving the Edgemont area. Environmental: July 2025 - September 2025 Design: October 2025 - December 2025 Construction: January 2026 - December 2026</p> <p>Justification or Significance of Improvement: Additional Wholesale Distribution Access Tariff (WDAT) capacity required to serve the Edgemont area.</p> <p>Estimated Maintenance Costs: Ongoing maintenance costs are built into Moreno Valley Utilities rate structure as part of the cost to serve.</p>		<p>Project Location Map:</p> 					
		<p>Council District(s): <input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>					
		<p>Life-to-Date Expenditures Through FY 2019/2020: 0</p>					
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other						30,000 80,000 2,612,000	30,000 80,000 2,612,000
PROJECT TOTAL	0	0	0	0	0	2,722,000	2,722,000
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Unfunded UNF						2,722,000	2,722,000
REVENUE TOTAL	0	0	0	0	0	2,722,000	2,722,000

E-28

Packet Pg. 344

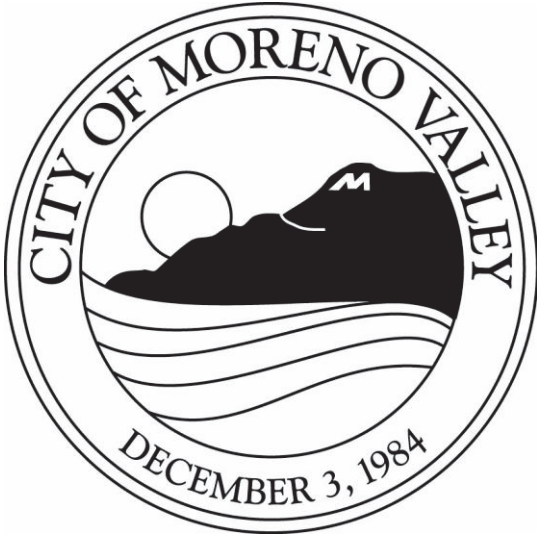
Attachment: Exhibit A - Proposed CIP FYs 2021/22 - 2022/23 (4417 : Capital Improvement Plan Fiscal Years 2021/22 - 2022/23)

CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond

<u>Project Name</u>	<u>Page #</u>
<i>Landscaping</i>	
<i>Unfunded Projects</i>	
None Listed	

Attachment: Exhibit A - Proposed CIP FYs 2021/22 - 2022/23 (4417 : Capital Improvement Plan Fiscal Years 2021/22 - 2022/23)

CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond

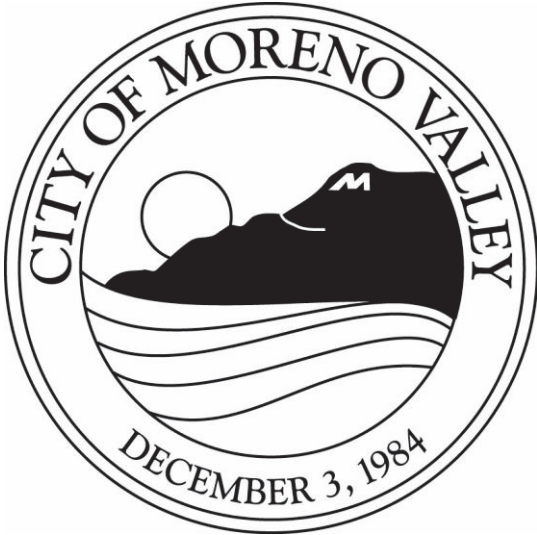


Attachment: Exhibit A - Proposed CIP FYs 2021/22 - 2022/23 (4417 : Capital Improvement Plan Fiscal Years 2021/22 - 2022/23)

**CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond**

<u>Project Name</u>	<u>Page #</u>
<i>Parks</i>	
<i>Unfunded Projects</i>	
Aqueduct Bike Trail / Alessandro Boulevard to Brodiaea Avenue, West of Heacock Street	P-17
Aqueduct Bike Trail / Dracaea Avenue to Pan Am Boulevard	P-18
Aqueduct Bike Trail / Iris Avenue to Red Maple Lane	P-19
Aqueduct Bike Trail / La Barca Way, Tract 22810	P-20
Aqueduct Bike Trail Landscaping / Bay Avenue to Caspian Way	P-21
Aqueduct Bike Trail Landscaping / Baywood Drive to Cottonwood Avenue	P-22
Aqueduct Bike Trail Landscaping / Delphinium Avenue to Perham Drive	P-23
Aqueduct Bike Trail Landscaping / Indian Street to Fay Avenue	P-24
Aqueduct Bike Trail Security Lights and Landscaping	P-25
Bethune Park Water Feature Replacement	P-26
Bikeway Enhancement North of Krameria Avenue and West of Kitching Street	P-27
Celebration Splash Pad Water Feature Renovation	P-28
Community Park, Phase II	P-29
Conference and Recreation Center Passive Park Gazebo	P-30
Construct Basketball Courts in Parks	P-31
Cottonwood Golf Center Parking Lot	P-32
Cottonwood Golf Course - Rebuild Greens	P-33
Future Park Site Development (Approximately 290 Acres)	P-34
Future Park Site Land Acquisition	P-35
In-Fill Parks and Facilities	P-36
Install Security Cameras at Various Parks and Facilities	P-37
March Field Park Ballfield Light Upgrade	P-38
March Field Park Design	P-39
March Field Park Multi-Use Field Construction	P-40
Moreno Valley Equestrian Center (MVEC) Master Plan and Design	P-41
Morrison Park Extension	P-42
Multi-Use Trails	P-43
Outdoor Exercise Equipment	P-44
Picnic Shelter Upgrades	P-45
Poorman's Reservoir Nature Park	P-46
Redlands Boulevard / Brodiaea Avenue Park and Community Center	P-47
Shadow Mountain Park, Phase II	P-48
Sports Field Lighting Upgrade at Various Park Sites	P-49
Upgrade Baseball Backstops in Parks	P-50

CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond



Attachment: Exhibit A - Proposed CIP FYs 2021/22 - 2022/23 (4417 : Capital Improvement Plan Fiscal Years 2021/22 - 2022/23)

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Aqueduct Bike Trail / Alessandro Boulevard to Brodiaea Avenue, West of Heacock Street

Department / Division: Parks & Community Services Department / Parks Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:

Council District(s):
 District 1 District 2 District 3 District 4

Project Description:
 This project would dedicate easement to CSD and install bike trail, known as the Aqueduct Bike Trail. The approximate size of this property is 18,750 sq. ft. The project is to be developer-funded.

Justification or Significance of Improvement:
 The aqueduct bike trail is part of the City's General Plan. The improvements at this site are consistent with the General Plan.

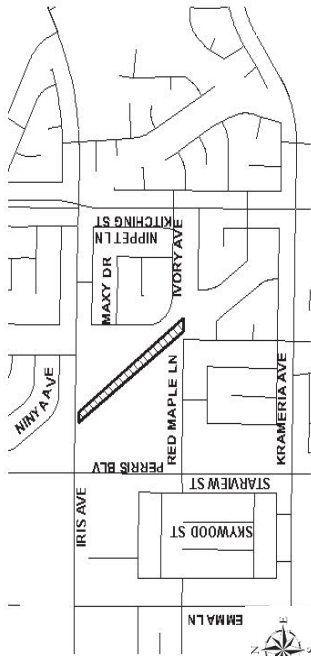
Estimated Maintenance Costs:
 Trail maintenance costs average approximately \$4,000 per acre per year based on budget information provided by the Parks Maintenance Division. Actual maintenance costs may vary depending on the size and amenities of the site. Currently no new funding source has been identified to fund costs associated with future replacements needed due to normal use.

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						48,600 48,600 24,300 315,900
PROJECT TOTAL	0	0	0	0	437,400	437,400
FUNDING SOURCE	Budget FY 2020/2021	FY 2025/2026 and Beyond				Total
Developer (Parks) UNF (DEV)						437,400
REVENUE TOTAL	0	0	0	0	437,400	437,400

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Aqueduct Bike Trail / Dracaea Avenue to Pan Am Boulevard</p> <p>Department / Division: Parks & Community Services Department / Parks Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>																																															
<p>Project Location Map:</p>																																																	
<p>Project Description: The project involves dedication of land to CSD and installation of bike trail, landscaping, and other improvements within a 100' wide aqueduct pipeline easement. The approximate size of this property is 88,000 sq. ft. The project is to be developer-funded.</p> <p>Justification or Significance of Improvement: The aqueduct bike trail is part of the City's General Plan. The improvements at this site are consistent with the General Plan.</p> <p>Estimated Maintenance Costs: Trail maintenance costs average approximately \$4,000 per acre per year based on budget information provided by the Parks Maintenance Division. Actual maintenance costs may vary depending on the size and amenities of the site. Currently no new funding source has been identified to fund costs associated with future replacements needed due to normal use.</p>																																																	
<p>Council District(s):</p> <p><input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>																																																	
<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2"></th> <th colspan="4" style="text-align: center;">FY 21/22 - FY 22/23 Budget</th> </tr> <tr> <th rowspan="2" style="text-align: left;">PROJECT PHASE</th> <th rowspan="2" style="text-align: center;">Budget FY 2020/2021</th> <th style="text-align: center;">New Request</th> <th style="text-align: center;">New Request</th> <th style="text-align: center;">Total</th> <th style="text-align: center;">Total</th> </tr> <tr> <th style="text-align: center;">FY 2021/2022</th> <th style="text-align: center;">FY 2022/2023</th> <th style="text-align: center;">FY 2023/2024</th> <th style="text-align: center;">FY 2024/2025</th> <th style="text-align: center;">FY 2025/2026 and Beyond</th> </tr> </thead> <tbody> <tr> <td>Prelim. Eng. / Environ. Design</td> <td></td> <td></td> <td></td> <td></td> <td align="right">145,800</td> </tr> <tr> <td>Right of Way</td> <td></td> <td></td> <td></td> <td></td> <td align="right">121,500</td> </tr> <tr> <td>Construction</td> <td></td> <td></td> <td></td> <td></td> <td align="right">24,300</td> </tr> <tr> <td>Other</td> <td></td> <td></td> <td></td> <td></td> <td align="right">1,205,300</td> </tr> <tr> <td>PROJECT TOTAL</td> <td align="right">0</td> <td align="right">0</td> <td align="right">0</td> <td align="right">0</td> <td align="right">1,496,900</td> </tr> </tbody> </table>					FY 21/22 - FY 22/23 Budget				PROJECT PHASE	Budget FY 2020/2021	New Request	New Request	Total	Total	FY 2021/2022	FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Prelim. Eng. / Environ. Design					145,800	Right of Way					121,500	Construction					24,300	Other					1,205,300	PROJECT TOTAL	0	0	0	0	1,496,900
		FY 21/22 - FY 22/23 Budget																																															
PROJECT PHASE	Budget FY 2020/2021	New Request	New Request	Total	Total																																												
		FY 2021/2022	FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond																																											
Prelim. Eng. / Environ. Design					145,800																																												
Right of Way					121,500																																												
Construction					24,300																																												
Other					1,205,300																																												
PROJECT TOTAL	0	0	0	0	1,496,900																																												
<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">FUNDING SOURCE</th> <th style="text-align: center;">Budget FY 2020/2021</th> <th style="text-align: center;">New Request FY 2021/2022</th> <th style="text-align: center;">New Request FY 2022/2023</th> <th style="text-align: center;">New Request FY 2023/2024</th> <th style="text-align: center;">New Request FY 2024/2025</th> <th style="text-align: center;">New Request FY 2025/2026 and Beyond</th> <th style="text-align: center;">Total</th> </tr> </thead> <tbody> <tr> <td>Developer (Parks)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>UNF (DEV)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td align="right">1,496,900</td> <td align="right">1,496,900</td> </tr> <tr> <td>REVENUE TOTAL</td> <td align="right">0</td> <td align="right">0</td> <td align="right">0</td> <td align="right">0</td> <td align="right">0</td> <td align="right">1,496,900</td> <td align="right">1,496,900</td> </tr> </tbody> </table>			FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	New Request FY 2023/2024	New Request FY 2024/2025	New Request FY 2025/2026 and Beyond	Total	Developer (Parks)								UNF (DEV)						1,496,900	1,496,900	REVENUE TOTAL	0	0	0	0	0	1,496,900	1,496,900															
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	New Request FY 2023/2024	New Request FY 2024/2025	New Request FY 2025/2026 and Beyond	Total																																										
Developer (Parks)																																																	
UNF (DEV)						1,496,900	1,496,900																																										
REVENUE TOTAL	0	0	0	0	0	1,496,900	1,496,900																																										

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Aqueduct Bike Trail / Iris Avenue to Red Maple Lane</p> <p>Department / Division: Parks & Community Services Department / Parks Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>																																								
<p>Project Location Map:</p> 																																										
<p>Project Description: The project involves dedication of land to CSD and installation of bike trail, landscaping, and other improvements within a 100' wide aqueduct pipeline easement. The approximate size of this property is 142,500 sq. ft. The project is to be developer-funded.</p> <p>Justification or Significance of Improvement: The aqueduct bike trail is part of the City's General Plan. The improvements at this site are consistent with the General Plan.</p> <p>Estimated Maintenance Costs: Trail maintenance costs average approximately \$4,000 per acre per year based on budget information provided by the Parks Maintenance Division. Actual maintenance costs may vary depending on the size and amenities of the site. Currently no new funding source has been identified to fund costs associated with future replacements needed due to normal use.</p>																																										
<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input checked="" type="checkbox"/> District 4</p>																																										
<p>FY 21/22 - FY 22/23 Budget</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:30%;">PROJECT PHASE</th> <th style="width:10%;">Budget FY 2020/2021</th> <th style="width:10%;">New Request FY 2021/2022</th> <th style="width:10%;">New Request FY 2022/2023</th> <th style="width:10%;">FY 2023/2024</th> <th style="width:10%;">FY 2024/2025</th> <th style="width:10%;">FY 2025/2026 and Beyond</th> <th style="width:10%;">Total</th> </tr> </thead> <tbody> <tr> <td>Prelim. Eng. / Environ. Design</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>182,300</td> <td>182,300</td> </tr> <tr> <td>Right of Way Construction</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>36,500</td> <td>36,500</td> </tr> <tr> <td>Other</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>2,023,000</td> <td>2,023,000</td> </tr> <tr> <td>PROJECT TOTAL</td> <td align="right">0</td> <td align="right">0</td> <td align="right">0</td> <td align="right">0</td> <td align="right">0</td> <td align="right">2,424,100</td> <td align="right">2,424,100</td> </tr> </tbody> </table>			PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total	Prelim. Eng. / Environ. Design						182,300	182,300	Right of Way Construction						36,500	36,500	Other						2,023,000	2,023,000	PROJECT TOTAL	0	0	0	0	0	2,424,100	2,424,100
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total																																			
Prelim. Eng. / Environ. Design						182,300	182,300																																			
Right of Way Construction						36,500	36,500																																			
Other						2,023,000	2,023,000																																			
PROJECT TOTAL	0	0	0	0	0	2,424,100	2,424,100																																			
<p>FUNDING SOURCE</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:30%;">FUNDING SOURCE</th> <th style="width:10%;">Budget FY 2020/2021</th> <th style="width:10%;">New Request FY 2021/2022</th> <th style="width:10%;">New Request FY 2022/2023</th> <th style="width:10%;">FY 2023/2024</th> <th style="width:10%;">FY 2024/2025</th> <th style="width:10%;">FY 2025/2026 and Beyond</th> <th style="width:10%;">Total</th> </tr> </thead> <tbody> <tr> <td>Developer (Parks) UNF (DEV)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>2,424,100</td> <td>2,424,100</td> </tr> <tr> <td>REVENUE TOTAL</td> <td align="right">0</td> <td align="right">0</td> <td align="right">0</td> <td align="right">0</td> <td align="right">0</td> <td align="right">2,424,100</td> <td align="right">2,424,100</td> </tr> </tbody> </table>			FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total	Developer (Parks) UNF (DEV)						2,424,100	2,424,100	REVENUE TOTAL	0	0	0	0	0	2,424,100	2,424,100																
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total																																			
Developer (Parks) UNF (DEV)						2,424,100	2,424,100																																			
REVENUE TOTAL	0	0	0	0	0	2,424,100	2,424,100																																			

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Aqueduct Bike Trail / La Barca Way, Tract 22810

Department / Division: Parks & Community Services Department / Parks Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:

Council District(s):
 District 1 District 2 District 3 District 4

Justification or Significance of Improvement:
 The aqueduct bike trail is part of the City's General Plan. The improvements at this site are consistent with the General Plan.

Estimated Maintenance Costs:
 Trail maintenance costs average approximately \$4,000 per acre per year based on budget information provided by the Parks Maintenance Division. Actual maintenance costs may vary depending on the size and amenities of the site. Currently no new funding source has been identified to fund costs associated with future replacements needed due to normal use.

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						170,100 97,200 24,300 1,387,500 1,679,100
PROJECT TOTAL	0	0	0	0	0	1,679,100

FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Developer (Parks) UNF (DEV)						1,679,100 1,679,100
REVENUE TOTAL	0	0	0	0	0	1,679,100

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Aqueduct Bike Trail Landscaping / Bay Avenue to Caspian Way</p> <p>Department / Division: Parks & Community Services Department / Parks Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>																												
<p>Project Location Map:</p>																														
<p>Council District(s):</p> <p><input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>																														
<p>FY 21/22 - FY 22/23 Budget</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:30%;"></th> <th style="width:15%;">New Request FY 2021/2022</th> <th style="width:15%;">New Request FY 2022/2023</th> <th style="width:15%;">FY 2023/2024</th> <th style="width:15%;">FY 2024/2025</th> <th style="width:15%;">FY 2025/2026 and Beyond</th> <th style="width:10%;">Total</th> </tr> </thead> <tbody> <tr> <td>PROJECT PHASE</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Prelim. Eng. / Environ. Design Right of Way Construction Other</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>PROJECT TOTAL</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">1,773,900</td> <td style="text-align: right;">1,773,900</td> </tr> </tbody> </table>				New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total	PROJECT PHASE							Prelim. Eng. / Environ. Design Right of Way Construction Other							PROJECT TOTAL	0	0	0	0	1,773,900	1,773,900
	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total																								
PROJECT PHASE																														
Prelim. Eng. / Environ. Design Right of Way Construction Other																														
PROJECT TOTAL	0	0	0	0	1,773,900	1,773,900																								
<p>FUNDING SOURCE</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:30%;"></th> <th style="width:15%;">New Request FY 2021/2022</th> <th style="width:15%;">New Request FY 2022/2023</th> <th style="width:15%;">FY 2023/2024</th> <th style="width:15%;">FY 2024/2025</th> <th style="width:15%;">FY 2025/2026 and Beyond</th> <th style="width:10%;">Total</th> </tr> </thead> <tbody> <tr> <td>Unfunded UNF</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>REVENUE TOTAL</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">1,773,900</td> <td style="text-align: right;">1,773,900</td> </tr> </tbody> </table>				New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total	Unfunded UNF							REVENUE TOTAL	0	0	0	0	1,773,900	1,773,900							
	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total																								
Unfunded UNF																														
REVENUE TOTAL	0	0	0	0	1,773,900	1,773,900																								

Project Description:
This project involves installation of landscaping at missing areas of the Aqueduct Bike Trail between Caspian Way and Bay Avenue; 127,000 SF.

Justification or Significance of Improvement:
The Aqueduct Bike Trail between Bay Avenue and Caspian Way (Class I concrete bike trail and limited landscaping adjacent to street intersections or trailheads) is complete. This project will install missing landscaping such that the entire segment of the 100' wide Aqueduct Easement will be landscaped between Bay Avenue and Caspian Way.

Estimated Maintenance Costs:
Trail maintenance costs average approximately \$4,000 per acre per year based on budget information provided by the Parks Maintenance Division. Actual maintenance costs may vary depending on the size and amenities of the site. Currently no new funding source has been identified to fund costs associated with future replacements needed due to normal use.

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Aqueduct Bike Trail Landscaping / Baywood Drive to Cottonwood Avenue</p> <p>Department / Division: Parks & Community Services Department / Parks Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>
<p>Project Location Map:</p>		
<p>Project Description: This project will install 28,000 S.F. of landscaping at missing areas of the Aqueduct Bike Trail between Baywood Drive and Cottonwood Avenue.</p> <p>Justification or Significance of Improvement: The Aqueduct Bike Trail between Baywood Drive and Cottonwood Avenue (Class I concrete bike trail and limited landscaping adjacent to street intersections or trailheads) is complete. This project will install missing landscaping such that the entire segment of the 100' wide Aqueduct Easement will be landscaped between Baywood Drive and Cottonwood Avenue.</p> <p>Estimated Maintenance Costs: Trail maintenance costs average approximately \$4,000 per acre per year based on budget information provided by the Parks Maintenance Division. Actual maintenance costs may vary depending on the size and amenities of the site. Currently no new funding source has been identified to fund costs associated with future replacements needed due to normal use.</p>		
<p>Council District(s):</p> <p><input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>		

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other					9,700 36,500 345,100	9,700 36,500 345,100
PROJECT TOTAL	0	0	0	0	391,300	391,300
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				Total
Unfunded UNF					391,300	391,300
REVENUE TOTAL	0	0	0	0	391,300	391,300

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Aqueduct Bike Trail Landscaping / Delphinium Avenue to Perham Drive

Department / Division: Parks & Community Services Department / Parks Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:

Project Description:
 This project will install 52,000 S.F. landscaping at missing areas of the Aqueduct Bike Trail between Delphinium Avenue and Perham Drive.

Justification or Significance of Improvement:
 The Aqueduct Bike Trail between Delphinium Avenue and Perham Drive (Class I concrete bike trail and limited landscaping adjacent to street intersections or trailheads) is complete. This project will install missing landscaping such that the entire segment of the 100' wide Aqueduct Easement will be landscaped between Delphinium Avenue and Perham Drive.

Estimated Maintenance Costs:
 Trail maintenance costs average approximately \$4,000 per acre per year based on budget information provided by the Parks Maintenance Division. Actual maintenance costs may vary depending on the size and amenities of the site. Currently no new funding source has been identified to fund costs associated with future replacements needed due to normal use.

Council District(s):
 District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						30,400 60,800 637,900
PROJECT TOTAL	0	0	0	0	729,100	729,100
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				Total
Unfunded UNF						729,100
REVENUE TOTAL	0	0	0	0	729,100	729,100

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Aqueduct Bike Trail Landscaping / Indian Street to Fay Avenue

Department / Division: Parks & Community Services Department / Parks Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:

Council District(s):
 District 1
 District 2
 District 3
 District 4

Project Description:
This project will install 91,000 S.F. of landscaping at missing areas of Aqueduct Bike Trail between Indian Street and Fay Avenue.

(A separate project, Project No. 06-125.67524, constructed concrete bike trail and limited landscaping adjacent to street intersections or trailheads during FY 2008/09).

Justification or Significance of Improvement:
The project will install missing landscaping such that entire segment of the 100' wide Aqueduct Easement will be landscaped between Indian Street and Fay Avenue.

Estimated Maintenance Costs:
Trail maintenance costs average approximately \$4,000 per acre per year based on budget information provided by the Parks Maintenance Division. Actual maintenance costs may vary depending on the size and amenities of the site. Currently no new funding source has been identified to fund costs associated with future replacements needed due to normal use.

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						24,300 103,300 1,148,200
PROJECT TOTAL	0	0	0	0	0	1,275,800
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				Total
Unfunded UNF						1,275,800
REVENUE TOTAL	0	0	0	0	0	1,275,800

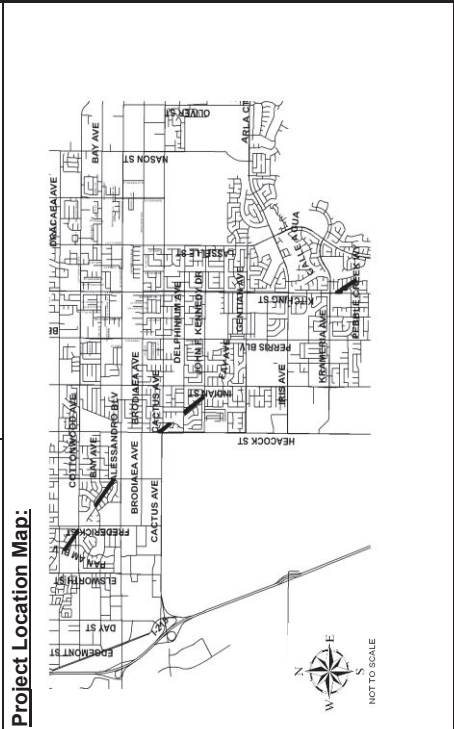
CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Aqueduct Bike Trail Security Lights and Landscaping

Department / Division: Parks & Community Services Department / Parks Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)



Project Description:
 This project will install security lighting and landscaping along the following Aqueduct Bikeways:
 1.) Pan Am Boulevard - Cottonwood Avenue,
 2.) Bay Avenue - Graham Street,
 3.) John F Kennedy Drive - Delphinium Avenue,
 4.) Cactus Avenue (southside) / Heacock Street (eastside) - Unity Court,
 5.) Kitching Street - Camino Bellagio.

The lighting envisioned is possibly pulse start metal halide; however, as technology improves, the City may consider solar energy. To date, solar lighting is expensive and utilizes large solar panels, which are not vandal resistant.

Justification or Significance of Improvement:
 The purpose of this project is to enhance these bikeways and provide safety to users. Lighting is needed.

Estimated Maintenance Costs:
 Trail maintenance costs average approximately \$4,000 per acre per year based on budget information provided by the Parks Maintenance Division. Actual maintenance costs may vary depending on the size and amenities of the site. Currently no new funding source has been identified to fund costs associated with future replacements needed due to normal use.

Council District(s):
 District 1
 District 2
 District 3
 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						133,700 212,600 4,711,800
PROJECT TOTAL	0	0	0	0	0	5,058,100
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				Total
Unfunded UNF						5,058,100
REVENUE TOTAL	0	0	0	0	0	5,058,100

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Bethune Park Water Feature Replacement

Department / Division: Parks & Community Services Department / Parks Division

Project Status:
 New
 Deleted
 In Progress
 On Hold
 Completed

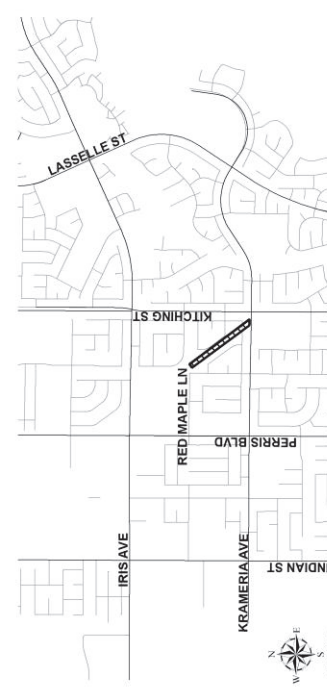
Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:

Council District(s):
 District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						24,300
PROJECT TOTAL	0	0	0	0	935,600	935,600
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				Total
Developer (Parks) UNF (DEV)						935,600
REVENUE TOTAL	0	0	0	0	935,600	935,600

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Bikeway Enhancement North of Krameria Avenue and West of Kitching Street</p> <p>Department / Division: Parks & Community Services Department / Parks Division</p>	<p>Project Status:</p> <p><input type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input checked="" type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input checked="" type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>																																										
<p>Project Location Map:</p> 																																												
<p>Project Description:</p> <p>The Aqueduct Bikeway is part of the City's General Plan. Bikeway enhancement is needed within this site to comply with the General Plan. The new bike path will be constructed on concrete. Stub-ups for future energy efficient lighting will be included.</p> <p>Planned design and construction is estimated for FY 16/17. The project is being placed on hold until grant funds are secured.</p> <p>A grant from the Bicycle Transportation Account (BTA) is being pursued by the Transportation Engineering Division to assist with funding.</p> <p>This project was funded previously under DIF-Parkland Facilities.</p> <p>Justification or Significance of Improvement: Bikeway enhancement is needed within this site to comply with the City's General Plan.</p> <p>Estimated Maintenance Costs: Trail maintenance costs average approximately \$4,000 per acre per year based on budget information provided by the Parks Maintenance Division. Actual maintenance costs may vary depending on the size and amenities of the site. Currently no new funding source has been identified to fund costs associated with future replacements needed due to normal use.</p>																																												
<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input checked="" type="checkbox"/> District 4</p>																																												
<p>FY 21/22 - FY 22/23 Budget</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:30%;"></th> <th style="width:15%;">New Request FY 2021/2022</th> <th style="width:15%;">New Request FY 2022/2023</th> <th style="width:15%;">FY 2023/2024</th> <th style="width:15%;">FY 2024/2025</th> <th style="width:15%;">FY 2025/2026 and Beyond</th> <th style="width:10%;">Total</th> </tr> </thead> <tbody> <tr> <td>PROJECT PHASE</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Prelim. Eng. / Environ. Design</td> <td></td> <td></td> <td></td> <td></td> <td>60,800</td> <td>60,800</td> </tr> <tr> <td>Right of Way Construction</td> <td></td> <td></td> <td></td> <td></td> <td>261,200</td> <td>261,200</td> </tr> <tr> <td>Other</td> <td></td> <td></td> <td></td> <td></td> <td>261,200</td> <td>261,200</td> </tr> <tr> <td>PROJECT TOTAL</td> <td align="right">0</td> <td align="right">0</td> <td align="right">0</td> <td align="right">0</td> <td align="right">583,200</td> <td align="right">583,200</td> </tr> </tbody> </table>				New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total	PROJECT PHASE							Prelim. Eng. / Environ. Design					60,800	60,800	Right of Way Construction					261,200	261,200	Other					261,200	261,200	PROJECT TOTAL	0	0	0	0	583,200	583,200
	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total																																						
PROJECT PHASE																																												
Prelim. Eng. / Environ. Design					60,800	60,800																																						
Right of Way Construction					261,200	261,200																																						
Other					261,200	261,200																																						
PROJECT TOTAL	0	0	0	0	583,200	583,200																																						
<p>FUNDING SOURCE</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:30%;"></th> <th style="width:15%;">New Request FY 2021/2022</th> <th style="width:15%;">New Request FY 2022/2023</th> <th style="width:15%;">FY 2023/2024</th> <th style="width:15%;">FY 2024/2025</th> <th style="width:15%;">FY 2025/2026 and Beyond</th> <th style="width:10%;">Total</th> </tr> </thead> <tbody> <tr> <td>Parkland DIF (2905)</td> <td></td> <td></td> <td></td> <td></td> <td>291,600</td> <td>291,600</td> </tr> <tr> <td>3006.UNF</td> <td></td> <td></td> <td></td> <td></td> <td>291,600</td> <td>291,600</td> </tr> <tr> <td>Unfunded Grants (3006)</td> <td></td> <td></td> <td></td> <td></td> <td>291,600</td> <td>291,600</td> </tr> <tr> <td>3006.UNF</td> <td></td> <td></td> <td></td> <td></td> <td>291,600</td> <td>291,600</td> </tr> <tr> <td>REVENUE TOTAL</td> <td align="right">0</td> <td align="right">0</td> <td align="right">0</td> <td align="right">0</td> <td align="right">583,200</td> <td align="right">583,200</td> </tr> </tbody> </table>				New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total	Parkland DIF (2905)					291,600	291,600	3006.UNF					291,600	291,600	Unfunded Grants (3006)					291,600	291,600	3006.UNF					291,600	291,600	REVENUE TOTAL	0	0	0	0	583,200	583,200
	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total																																						
Parkland DIF (2905)					291,600	291,600																																						
3006.UNF					291,600	291,600																																						
Unfunded Grants (3006)					291,600	291,600																																						
3006.UNF					291,600	291,600																																						
REVENUE TOTAL	0	0	0	0	583,200	583,200																																						

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Celebration Splash Pad Water Feature Renovation

Department / Division: Parks & Community Services Department / Parks Division

Project Status:
 New
 Deleted
 In Progress
 On Hold
 Completed

Project Location Map:

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Description:
 This project will add another holding tank, replace pump system, and replace play apparatus. This aging system is nearing its life expectancy, and requires replacement.
 Construction: Subject to availability of funds.

Justification or Significance of Improvement:
 Equipment is outdated and repair costs are excessive.

Estimated Maintenance Costs:
 Park maintenance costs average approximately \$12,000 per acre per year based on budget information provided by the Parks Maintenance Division. Actual maintenance costs may vary depending on the size and amenities of the site. Currently no new funding source has been identified to fund costs associated with future replacements needed due to normal use.

Council District(s):
 District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						
PROJECT TOTAL	0	0	0	0	0	1,123,900
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
CFD#1 (5113) UNF						
REVENUE TOTAL	0	0	0	0	0	1,123,900

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Community Park, Phase II

Department / Division: Parks & Community Services Department / Parks Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:

Justification or Significance of Improvement:
 Phase II will provide parking lot renovations, a concession area, and modifications to the restroom building. A full service concession area is needed by sports groups during tournaments. The restroom needs general modifications. The parking lot needs re-construction.

Estimated Maintenance Costs:
 Park maintenance costs average approximately \$12,000 per acre per year based on budget information provided by the Parks Maintenance Division. Actual maintenance costs may vary depending on the size and amenities of the site. Currently no new funding source has been identified to fund costs associated with future replacements needed due to normal use.

Council District(s):
 District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						121,500
PROJECT TOTAL	0	0	0	0	0	2,150,600
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				Total
Unfunded UNF						2,150,600
REVENUE TOTAL	0	0	0	0	0	2,150,600

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Conference and Recreation Center Passive Park Gazebo</p> <p>Department / Division: Parks & Community Services Department / Parks Division</p>	<p>Project Status:</p> <p><input type="checkbox"/> New <input type="checkbox"/> Deleted</p> <p><input type="checkbox"/> In Progress <input checked="" type="checkbox"/> On Hold</p> <p><input type="checkbox"/> Completed</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr)</p> <p><input type="checkbox"/> Necessary (Start within 1 to 3 yrs)</p> <p><input type="checkbox"/> Desirable (Start within 3 to 5 yrs)</p> <p><input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>
<p>Project Location Map:</p>		
<p>Project Description: The project will add a gazebo to the Passive Park at the northwest corner of the conference and Recreation Center to increase usage of the area.</p> <p>Justification or Significance of Improvement: This area is rarely used. Installing a gazebo will draw people to this area and create a new stream for the Conference and Recreation Center.</p> <p>Estimated Maintenance Costs: Park maintenance costs average approximately \$12,000 per acre per year based on budget information provided by the Parks Maintenance Division. Actual maintenance costs may vary depending on the size and amenities of the site. Currently no new funding source has been identified to fund costs associated with future replacements needed due to normal use.</p>		
<p>Council District(s):</p> <p><input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>		

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						
PROJECT TOTAL	0	0	0	0	182,300	182,300
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	Total
Parkland DIF (2905) 3006.UNF						
REVENUE TOTAL	0	0	0	0	182,300	182,300

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Construct Basketball Courts in Parks</p> <p>Department / Division: Parks & Community Services Department / Parks Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> Deleted <input type="checkbox"/> In Progress <input type="checkbox"/> On Hold <input type="checkbox"/> Completed</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input checked="" type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>
<p>Project Location Map:</p>		
<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input checked="" type="checkbox"/> District 4</p>		

Project Description:
 Install basketball courts in parks. March Field Park is a location that could benefit from having basketball available to the area residents

Justification or Significance of Improvement:
 Basketball is a popular sport in the City. Certain parks are deficient in this amenity.

Estimated Maintenance Costs:
 Park maintenance costs average approximately \$12,000 per acre per year based on budget information provided by the Parks Maintenance Division. Actual maintenance costs may vary depending on the size and amenities of the site. Currently no new funding source has been identified to fund costs associated with future replacements needed due to normal use.

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						30,400 303,800
PROJECT TOTAL	0	0	0	0	334,200	334,200
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				Total
Unfunded UNF						334,200
REVENUE TOTAL	0	0	0	0	334,200	334,200

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Cottonwood Golf Center Parking Lot

Department / Division: Parks & Community Services Department / Parks Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:

Project Description:
This project involves the repairing and striping of the Cottonwood Golf Course parking lot, adding planters, and adding lighting.

Justification or Significance of Improvement:
Approximately 10 years ago, this parking lot was capped as a temporary fix. At that time the asphalt was in poor condition. Time and the elements of nature have taken its toll on the parking lot, necessitating its replacement. Lighting does not meet parks foot candle standards. Since the remodel of the center, rentals have increased. The facility now needs a parking lot upgrade to restore the decaying pavement provide shade for vehicles, and fix substandard lighting.

Estimated Maintenance Costs:
Parking lot maintenance costs are estimated \$3,500 per acre per year based on budget information provided by the Parks Maintenance Division. Actual maintenance costs may vary depending on the size and amenities of the site. Currently no new funding source has been identified to fund costs associated with future replacements needed due to normal use.

Council District(s):
 District 1
 District 2
 District 3
 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						121,500
PROJECT TOTAL	0	0	0	0	1,336,500	1,215,000
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				Total
Unfunded UNF						1,336,500
REVENUE TOTAL	0	0	0	0	1,336,500	1,336,500

CITY OF MORENO VALLEY
 Capital Improvement Plan - Project Details
 FYs 2021-2026 and Beyond

Project Title: Cottonwood Golf Course - Rebuild Greens

Department / Division: Parks & Community Services Department / Parks Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:

Project Description:
 This project involves the rebuilding / replacement of the golf greens with new turf, soil, and drainage.

Justification or Significance of Improvement:
 Seven of the greens are the original greens as acquired from the County. Two of the greens were replaced approximately 13 years ago. These greens were constructed on native soil, having poor drainage. Due to this, the greens have had problems with turf diseases.

Estimated Maintenance Costs:
 Park maintenance costs average approximately \$12,000 per acre per year based on budget information provided by the Parks Maintenance Division. Actual maintenance costs may vary depending on the size and amenities of the site. Currently no new funding source has been identified to fund costs associated with future replacements needed due to normal use.

Council District(s):
 District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						21,900
PROJECT TOTAL	0	0	0	0	0	223,600
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				Total
Unfunded UNF						223,600
REVENUE TOTAL	0	0	0	0	0	223,600

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Future Park Site Development (Approximately 290 Acres)</p> <p>Department / Division: Parks & Community Services Department / Parks Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>
<p>Project Location Map:</p> <p style="text-align: center;">Locations to be determined</p>		
<p>Justification or Significance of Improvement:</p> <p>In order to maintain the City's adopted ratio of 3 acres per 1,000 population for parkland, approximately 290 acres of developed parks will be needed at build out.</p> <p>Estimated Maintenance Costs:</p> <p>Park maintenance costs average approximately \$12,000 per acre per year based on budget information provided by the Parks Maintenance Division. Actual maintenance costs may vary depending on the size and amenities of the site. Currently no new funding source has been identified to fund costs associated with future replacements needed due to normal use.</p>		
<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>		

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total	
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond		
Prelim. Eng. / Environ. Design Right of Way Construction Other					9,914,400	9,914,400	
PROJECT TOTAL	0	0	0	0	99,144,000	99,144,000	
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				FY 2025/2026 and Beyond	Total
Unfunded UNF					99,144,000	99,144,000	
REVENUE TOTAL	0	0	0	0	99,144,000	99,144,000	

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Future Park Site Land Acquisition</p> <p>Department / Division: Parks & Community Services Department / Parks Division</p>	<p>Project Status:</p> <p><input type="checkbox"/> New <input type="checkbox"/> Deleted</p> <p><input type="checkbox"/> In Progress <input type="checkbox"/> On Hold</p> <p><input type="checkbox"/> Completed <input checked="" type="checkbox"/></p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr)</p> <p><input type="checkbox"/> Necessary (Start within 1 to 3 yrs)</p> <p><input type="checkbox"/> Desirable (Start within 3 to 5 yrs)</p> <p><input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>					
<p>Project Location Map:</p> <p align="center">CITYWIDE</p>							
<p>Project Description:</p> <p>The Quimby funding for property acquisition is targeted for future park sites within the City.</p> <p>New park sites are needed in growing areas as suitable properties become available. It is important to evaluate the properties and land bank for future park use.</p> <p>Project Timing: Future</p> <p>Justification or Significance of Improvement:</p> <p>The Quimby funding for property acquisition is targeted for future park sites within the City.</p> <p>Estimated Maintenance Costs:</p> <p>Park maintenance costs average approximately \$12,000 per acre per year based on budget information provided by the Parks Maintenance Division. Actual maintenance costs may vary depending on the size and amenities of the site. Currently no new funding source has been identified to fund these maintenance costs.</p>							
<p>Council District(s):</p> <p><input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input checked="" type="checkbox"/> District 4</p>							
<p>FY 21/22 - FY 22/23 Budget</p>							
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other						2,430,000	2,430,000
PROJECT TOTAL	0	0	0	0	0	2,430,000	2,430,000
<p>FUNDING SOURCE</p>							
Quimby In-Lieu (2906) 3006Q.UNF						2,430,000	2,430,000
REVENUE TOTAL	0	0	0	0	0	2,430,000	2,430,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: In-Fill Parks and Facilities	Project Status: <input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold	Project Priority in CIP Category: <input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)
Department / Division: Parks & Community Services Department / Parks Division		
Project Location Map:		
CITYWIDE		
Council District(s): <input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input checked="" type="checkbox"/> District 4		

PROJECT PHASE Prelim. Eng. / Environ. Design Right of Way Construction Other	Budget FY 2020/2021		FY 21/22 - FY 22/23 Budget							
			New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total		
			0		0		607,500 1,215,000 61,381,800 63,204,300	607,500 1,215,000 61,381,800 63,204,300		
PROJECT TOTAL			0		0		63,204,300	63,204,300		
FUNDING SOURCE Unfunded UNF	Budget FY 2020/2021		FY 21/22 - FY 22/23 Budget							
			New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total		
			0				63,204,300	63,204,300		
REVENUE TOTAL			0		0		63,204,300	63,204,300		

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Install Security Cameras at Various Parks and Facilities

Department / Division: Parks & Community Services Department / Parks Division

Project Status:
 New
 Deleted
 In Progress
 On Hold
 Completed

Project Location Map:

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Description:
This project will install or upgrade security cameras at various parks and facilities.

Upgrade the systems at Towngate Community Center, Senior Center, Conference and Recreation Center. They will be linked into the Citywide camera system.

Justification or Significance of Improvement:
Security cameras will monitor and document vandalism and illegal activity at various parks and facilities. The camera system will assist the Park Rangers in recording activities at these parks.

Estimated Maintenance Costs:
Park maintenance costs average approximately \$12,000 per acre per year based on budget information provided by the Parks Maintenance Division. Actual maintenance costs may vary depending on the size and amenities of the site. Annual average building maintenance costs are estimated at approximately \$9/SF. Although actual maintenance costs may vary, this estimated cost is based on an industry accepted standard maintenance cost. Currently no new funding source has been identified to fund costs associated with future replacements needed due to normal use.

Council District(s):
 District 1
 District 2
 District 3
 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						
PROJECT TOTAL	0	0	0	121,500	0	121,500
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				Total
Unfunded UNF						
REVENUE TOTAL	0	0	0	121,500	0	121,500

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: March Field Park Ballfield Light Upgrade

Department / Division: Parks & Community Services Department / Parks Division

Project Status:
 New
 Deleted
 In Progress
 On Hold
 Completed

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:

Council District(s):
 District 1 District 2 District 3 District 4

Project Description:
Upgrade the ballfield lights on field 1 and 2. The new lights would be controlled by the existing Musco Control Link system. The new lighting will be energy efficient LED.

Justification or Significance of Improvement:
The ballfield lights at this site are original to the park. The lighting is not sufficient for the sport and should be replaced.

Estimated Maintenance Costs:
Park maintenance costs average approximately \$12,000 per acre per year based on budget information provided by the Parks Maintenance Division. Actual maintenance costs may vary depending on the size and amenities of the site. Currently no new funding source has been identified to fund costs associated with future replacements needed due to normal use.

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						121,500
PROJECT TOTAL	0	0	0	0	1,640,300	1,640,300
FUNDING SOURCE	Budget FY 2020/2021	FY 2025/2026 and Beyond				Total
Unfunded UNF						1,640,300
REVENUE TOTAL	0	0	0	0	1,640,300	1,640,300

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: March Field Park Design</p> <p>Department / Division: Parks & Community Services Department / Parks Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>					
<p>Project Location Map:</p>							
<p>Project Description: March Field Park design will plan and design specific amenities/improvements such as sports fields, restrooms, etc.</p> <p>Justification or Significance of Improvement: March Field Park has approximately 60 acres of undeveloped open space. The design is the first step to providing improvements for the growing community.</p> <p>Estimated Maintenance Costs: Park maintenance costs average approximately \$12,000 per acre per year based on budget information provided by the Parks Maintenance Division. Actual maintenance costs may vary depending on the size and amenities of the site. Currently no new funding source has been identified to fund costs associated with future replacements needed due to normal use.</p>							
<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>							
<p>FY 21/22 - FY 22/23 Budget</p>							
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other						371,800	371,800
PROJECT TOTAL	0	0	0	0	0	371,800	371,800
<p>FUNDING SOURCE</p>							
Unfunded UNF						371,800	371,800
REVENUE TOTAL	0	0	0	0	0	371,800	371,800

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: March Field Park Multi-Use Field Construction</p> <p>Department / Division: Parks & Community Services Department / Parks Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>																																								
<p>Project Location Map:</p>																																										
<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>																																										
<p>FY 21/22 - FY 22/23 Budget</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:30%;">PROJECT PHASE</th> <th style="width:10%;">Budget FY 2020/2021</th> <th style="width:10%;">New Request FY 2021/2022</th> <th style="width:10%;">New Request FY 2022/2023</th> <th style="width:10%;">FY 2023/2024</th> <th style="width:10%;">FY 2024/2025</th> <th style="width:10%;">FY 2025/2026 and Beyond</th> <th style="width:10%;">Total</th> </tr> </thead> <tbody> <tr> <td>Prelim. Eng. / Environ. Design</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>182,300</td> <td>182,300</td> </tr> <tr> <td>Right of Way Construction</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>303,800</td> <td>303,800</td> </tr> <tr> <td>Other</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>24,919,700</td> <td>24,919,700</td> </tr> <tr> <td>PROJECT TOTAL</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">25,405,800</td> <td style="text-align: right;">25,405,800</td> </tr> </tbody> </table>			PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total	Prelim. Eng. / Environ. Design						182,300	182,300	Right of Way Construction						303,800	303,800	Other						24,919,700	24,919,700	PROJECT TOTAL	0	0	0	0	0	25,405,800	25,405,800
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total																																			
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FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total																																			
Unfunded UNF						25,405,800	25,405,800																																			
REVENUE TOTAL	0	0	0	0	0	25,405,800	25,405,800																																			

Project Description:
The March Field Park master plan calls for multi-use fields, ballfields, restrooms, and on site / off site improvements.

Justification or Significance of Improvement:
March Field Park has approximately 60 acres of undeveloped open space. Development of the site will provide the entire community with quality recreational facilities, adhering to the General Plan.

Estimated Maintenance Costs:
Park maintenance costs average approximately \$12,000 per acre per year based on budget information provided by the Parks Maintenance Division. Actual maintenance costs may vary depending on the size and amenities of the site. Currently no new funding source has been identified to fund costs associated with future replacements needed due to normal use.

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Moreno Valley Equestrian Center (MVEC) Master Plan and Design</p> <p>Department / Division: Parks & Community Services Department / Parks Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>																
<p>Project Description: The master plan of the equestrian center would optimize its use to the needs of the community.</p> <p>Justification or Significance of Improvement: The equestrian center consists of approximately 45 acres. Currently, the only amenity is a horse arena. Master planning this site is necessary to fulfill the recreational needs of the community.</p> <p>Estimated Maintenance Costs: Equestrian Center maintenance costs average approximately \$6,000 per acre per year based on budget information provided by the Parks Maintenance Division. Actual maintenance costs may vary depending on the size and amenities of the site. Currently no new funding source has been identified to fund costs associated with future replacements needed due to normal use.</p>																		
<p>Project Location Map:</p>																		
<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input checked="" type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>																		
<p>FY 21/22 - FY 22/23 Budget</p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;"></td> <td style="width:15%; text-align: center;">New Request</td> <td style="width:15%; text-align: center;">FY 2021/2022</td> <td style="width:15%; text-align: center;">FY 2022/2023</td> <td style="width:15%; text-align: center;">FY 2023/2024</td> <td style="width:15%; text-align: center;">FY 2024/2025</td> <td style="width:15%; text-align: center;">FY 2025/2026 and Beyond</td> <td style="width:15%; text-align: center;">Total</td> </tr> <tr> <td></td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">187,100</td> <td style="text-align: center;">187,100</td> </tr> </table>				New Request	FY 2021/2022	FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total		0	0	0	0	0	187,100	187,100
	New Request	FY 2021/2022	FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total											
	0	0	0	0	0	187,100	187,100											
<p>Funding Source</p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;"></td> <td style="width:15%; text-align: center;">New Request</td> <td style="width:15%; text-align: center;">FY 2021/2022</td> <td style="width:15%; text-align: center;">FY 2022/2023</td> <td style="width:15%; text-align: center;">FY 2023/2024</td> <td style="width:15%; text-align: center;">FY 2024/2025</td> <td style="width:15%; text-align: center;">FY 2025/2026 and Beyond</td> <td style="width:15%; text-align: center;">Total</td> </tr> <tr> <td>Unfunded UNF</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td style="text-align: center;">187,100</td> <td style="text-align: center;">187,100</td> </tr> </table>				New Request	FY 2021/2022	FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total	Unfunded UNF						187,100	187,100
	New Request	FY 2021/2022	FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total											
Unfunded UNF						187,100	187,100											
<p>REVENUE TOTAL</p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;"></td> <td style="width:15%; text-align: center;">0</td> <td style="width:15%; text-align: center;">0</td> <td style="width:15%; text-align: center;">0</td> <td style="width:15%; text-align: center;">0</td> <td style="width:15%; text-align: center;">0</td> <td style="width:15%; text-align: center;">187,100</td> <td style="width:15%; text-align: center;">187,100</td> </tr> </table>				0	0	0	0	0	187,100	187,100								
	0	0	0	0	0	187,100	187,100											

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Morrison Park Extension

Department / Division: Parks & Community Services Department / Parks Division

Project Status:
 New
 Deleted
 In Progress
 On Hold
 Completed

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:

Project Description:
The Morrison Park extension project will include the development of approximately 6.5 acres of parkland. Planned amenities include a tot lot, passive turf area, additional parking, open space, and possibly batting cages.

Justification or Significance of Improvement:
The community around Morrison Park has grown over the past few years. DIF funds collected will pay for improvements and satisfy some of the recreational needs of the community.

Estimated Maintenance Costs:
Park maintenance costs average approximately \$12,000 per acre per year based on budget information provided by the Parks Maintenance Division. Actual maintenance costs may vary depending on the size and amenities of the site. Currently no new funding source has been identified to fund costs associated with future replacements needed due to normal use.

Council District(s):
 District 1
 District 2
 District 3
 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						91,100 182,300 2,722,300
PROJECT TOTAL	0	0	0	0	0	2,995,700
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				Total
Unfunded UNF						2,995,700
REVENUE TOTAL	0	0	0	0	0	2,995,700

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Multi-Use Trails	Project Status: <input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold	Project Priority in CIP Category: <input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)
Department / Division: Parks & Community Services Department / Parks Division		
Project Location Map: Citywide		
Project Description: This project will provide Right of Way and improvement of additional multi-use trails.		
Justification or Significance of Improvement: Several miles of proposed multi-use trails within the City require acquisition and development in order to adhere to the master plan of trails.		
Estimated Maintenance Costs: Trail maintenance costs average approximately \$4,000 per acre per year based on budget information provided by the Parks Maintenance Division. Actual maintenance costs may vary depending on the size and amenities of the site. Currently no new funding source has been identified to fund costs associated with future replacements needed due to normal use.		
Council District(s): <input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input checked="" type="checkbox"/> District 4		

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						235,500 2,119,200 2,354,700
PROJECT TOTAL	0	0	0	0	0	2,354,700
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				Total
Unfunded UNF						2,354,700
REVENUE TOTAL	0	0	0	0	0	2,354,700

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Outdoor Exercise Equipment</p> <p>Department / Division: Parks & Community Services Department / Parks Division</p>	<p>Project Status:</p> <p><input type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input checked="" type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>
<p>Project Location Map:</p>		
<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input checked="" type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>		

Project Description:
The walkways and outdoor exercise equipment installed at Towngate Park are extensively utilized by fitness-minded residents. Shadow Mountain Park, and Cold Creek Trail are used frequently by walkers and joggers. The addition of outdoor exercise equipment at Shadow Mountain Park and Cold Creek Trail will provide residents additional means of exercise.

Justification or Significance of Improvement:
This project will install outdoor exercise equipment in order to provide residents with additional means for exercise.

Estimated Maintenance Costs:
Park maintenance costs average approximately \$12,000 per acre per year based on budget information provided by the Parks Maintenance Division. Actual maintenance costs may vary depending on the size and amenities of the site. Currently no new funding source has been identified to fund costs associated with future replacements needed due to normal use.

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total	
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond		
Prelim. Eng. / Environ. Design Right of Way Construction Other							
PROJECT TOTAL	0	0	0	0	121,500	121,500	
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				FY 2025/2026 and Beyond	Total
Unfunded UNF							
	0	0	0	0	121,500	121,500	


CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Picnic Shelter Upgrades		Project Status: <input checked="" type="checkbox"/> New <input type="checkbox"/> Deleted <input type="checkbox"/> In Progress <input type="checkbox"/> On Hold <input type="checkbox"/> Completed	Project Priority in CIP Category: <input type="checkbox"/> Essential (Start within 1 yr) <input checked="" type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)
Department / Division: Parks & Community Services Department / Parks Division		Project Location Map:	
Project Description: Replace or refurbish aging picnic shelters in Parks, citywide.		CITYWIDE	
Justification or Significance of Improvement Many picnic shelters in parks are from pre-incorporation of the City. Others are stick built by staff nearly twenty years ago. These structures are in need of refurbishment and/or replacement. The project would be scheduled over several years.		Council District(s): <input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input checked="" type="checkbox"/> District 4	
Estimated Maintenance Costs: Park maintenance costs average approximately \$12,000 per acre per year based on budget information provided by the Parks Maintenance Division. Actual maintenance costs may vary depending on the size and amenities of the site. Currently no new funding source has been identified to fund costs associated with future replacements needed due to normal use.			

	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
PROJECT PHASE Prelim. Eng. / Environ. Design Right of Way Construction Other					243,000	243,000	486,000
PROJECT TOTAL	0	0	0	0	243,000	243,000	486,000

	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
FUNDING SOURCE Unfunded UNF					243,000	243,000	486,000
REVENUE TOTAL	0	0	0	0	243,000	243,000	486,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Poorman's Reservoir Nature Park</p> <p>Department / Division: Parks & Community Services Department / Parks Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>
<p>Project Location Map:</p> 		
<p>Project Description: This project is for the design and development of this 125 acre site for best use.</p> <p>Justification or Significance of Improvement: This site consists of approximately 125 acres. Having restricted uses, this site needs a master plan to fulfill the recreational needs of the community.</p> <p>Estimated Maintenance Costs: Park maintenance costs average approximately \$12,000 per acre per year based on budget information provided by the Parks Maintenance Division. Actual maintenance costs may vary depending on the size and amenities of the site. Currently no new funding source has been identified to fund costs associated with future replacements needed due to normal use.</p>		
<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input checked="" type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>		

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						1,239,300 12,393,000 13,632,300
PROJECT TOTAL	0	0	0	0	0	13,632,300
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				Total
Unfunded UNF						13,632,300
REVENUE TOTAL	0	0	0	0	0	13,632,300

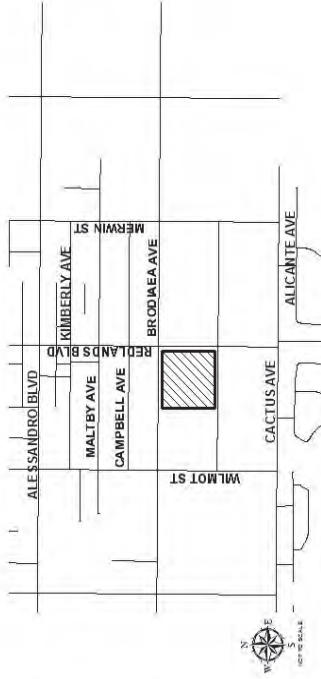
CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Redlands Boulevard / Brodiaea Avenue Park and Community Center
Department / Division: Parks & Community Services Department / Parks Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:



Council District(s):
 District 1
 District 2
 District 3
 District 4

Project Description:
 A future park site exists within the Cactus Corridor (SP214). This site is approximately 7.5 acres. Amenities should include a recreation building, tot lot, multiuse sports field area, landscaping, and on site parking.

Justification or Significance of Improvement:
 The Cactus Corridor is projected to have over 2500 residents. A park is necessary to keep with the City's General Plan.

Estimated Maintenance Costs:
 Park maintenance costs average approximately \$12,000 per acre per year based on budget information provided by the Parks Maintenance Division. Actual maintenance costs may vary depending on the size and amenities of the site. Currently no new funding source has been identified to fund costs associated with future replacements needed due to normal use.

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						1,215,000 8,505,000 8,505,000
PROJECT TOTAL	0	0	0	0	0	9,720,000
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				Total
Unfunded UNF						9,720,000 9,720,000
REVENUE TOTAL	0	0	0	0	0	9,720,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Shadow Mountain Park, Phase II

Department / Division: Parks & Community Services Department / Parks Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:

Project Description:
 This second phase of the park will include a picnic structure.

Justification or Significance of Improvement:
 Will provide a picnic facility adjacent to the playground.

Estimated Maintenance Costs:
 Park maintenance costs average approximately \$12,000 per acre per year based on budget information provided by the Parks Maintenance Division. Actual maintenance costs may vary depending on the size and amenities of the site. Currently no new funding source has been identified to fund costs associated with future replacements needed due to normal use.

Council District(s):
 District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						30,400
PROJECT TOTAL	0	0	0	0	273,400	273,400
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				Total
Developer (Parks) UNF (DEV)						273,400
REVENUE TOTAL	0	0	0	0	273,400	273,400

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Sports Field Lighting Upgrade at Various Park Sites</p> <p>Department / Division: Parks & Community Services Department / Parks Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>					
<p>Project Location Map:</p> <p align="center">CITYWIDE</p>							
<p>Project Description: This project involves the replacement of inefficient/outdated sports lighting at various sites.</p> <p>Justification or Significance of Improvement: Several sports fields have outdated and inefficient lighting. This is costing thousands of dollars in wasted electricity, while providing inadequate lighting for its users.</p> <p>Estimated Maintenance Costs: Park maintenance costs average approximately \$12,000 per acre per year based on budget information provided by the Parks Maintenance Division. Actual maintenance costs may vary depending on the size and amenities of the site. Currently no new funding source has been identified to fund costs associated with future replacements needed due to normal use.</p>							
<p>Council District(s):</p> <p><input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input checked="" type="checkbox"/> District 4</p>							
FY 21/22 - FY 22/23 Budget							
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other						1,239,300 11,153,700	1,239,300 11,153,700
PROJECT TOTAL	0	0	0	0	0	12,393,000	12,393,000
FUNDING SOURCE							
Unfunded UNF						12,393,000	12,393,000
REVENUE TOTAL	0	0	0	0	0	12,393,000	12,393,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Upgrade Baseball Backstop in Parks</p> <p>Department / Division: Parks & Community Services Department / Parks Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>																																																																						
<p>Project Location Map:</p>																																																																								
<p>Council District(s):</p> <p><input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input checked="" type="checkbox"/> District 4</p>																																																																								
<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2"></th> <th colspan="4" style="text-align: center;">FY 21/22 - FY 22/23 Budget</th> </tr> <tr> <th style="width:30%;">PROJECT PHASE</th> <th style="width:10%;">Budget FY 2020/2021</th> <th style="width:10%;">New Request FY 2021/2022</th> <th style="width:10%;">New Request FY 2022/2023</th> <th style="width:10%;">FY 2023/2024</th> <th style="width:10%;">FY 2024/2025</th> <th style="width:10%;">FY 2025/2026 and Beyond</th> <th style="width:10%;">Total</th> </tr> </thead> <tbody> <tr> <td>Prelim. Eng. / Environ. Design</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Right of Way Construction</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>516,400</td> <td>516,400</td> </tr> <tr> <td>Other</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>PROJECT TOTAL</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">516,400</td> <td style="text-align: right;">516,400</td> </tr> <tr> <td colspan="2">FUNDING SOURCE</td> <td colspan="2"></td> <td colspan="2"></td> <td colspan="2"></td> </tr> <tr> <td>Unfunded UNF</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>516,400</td> <td>516,400</td> </tr> <tr> <td>REVENUE TOTAL</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">516,400</td> <td style="text-align: right;">516,400</td> </tr> </tbody> </table>					FY 21/22 - FY 22/23 Budget				PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total	Prelim. Eng. / Environ. Design								Right of Way Construction						516,400	516,400	Other								PROJECT TOTAL	0	0	0	0	0	516,400	516,400	FUNDING SOURCE								Unfunded UNF						516,400	516,400	REVENUE TOTAL	0	0	0	0	0	516,400	516,400
		FY 21/22 - FY 22/23 Budget																																																																						
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total																																																																	
Prelim. Eng. / Environ. Design																																																																								
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Other																																																																								
PROJECT TOTAL	0	0	0	0	0	516,400	516,400																																																																	
FUNDING SOURCE																																																																								
Unfunded UNF						516,400	516,400																																																																	
REVENUE TOTAL	0	0	0	0	0	516,400	516,400																																																																	

Project Description:
Upgrade older style clamshell backstops with straight back backstops for Morrison Park, Towngate Park, Woodland Park, and JFK Veterans Memorial Park.

Justification or Significance of Improvement:
This upgrade would create a more professional field for the users.

Estimated Maintenance Costs:
Park maintenance costs average approximately \$12,000 per acre per year based on budget information provided by the Parks Maintenance Division. Actual maintenance costs may vary depending on the size and amenities of the site. Currently no new funding source has been identified to fund costs associated with future replacements needed due to normal use.


**CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond**

<u>Project Name</u>	<u>Page #</u>
<i>Traffic Signals</i>	
<i>Unfunded Projects</i>	
Alessandro Boulevard / Day Street Traffic Signal	T-15
Alessandro Boulevard (Future) / Gilman Springs Road Traffic Signal	T-16
Alessandro Boulevard / Quincy Street Traffic Signal	T-17
Alessandro Boulevard / Redlands Boulevard Traffic Signal	T-18
Alessandro Boulevard / Sinclair Street Traffic Signal	T-19
Alessandro Boulevard / World Logistics Center Parkway Traffic Signal	T-20
Cactus Avenue / Quincy Street Traffic Signal	T-21
Cottonwood Avenue / Elsworth Street Traffic Signal	T-22
Cottonwood Avenue / Old 215 Frontage Road Traffic Signal	T-23
Cottonwood Avenue / Quincy Street Traffic Signal	T-24
Cottonwood Avenue / Redlands Boulevard Traffic Signal	T-25
Cottonwood Avenue / Sinclair Street Traffic Signal	T-26
Cottonwood Avenue / World Logistics Center Parkway Traffic Signal	T-27
Day Street / Cottonwood Avenue Traffic Signal	T-28
Day Street / Dracaea Avenue Traffic Signal	T-29
Day Street / Eucalyptus Avenue Traffic Signal	T-30
Day Street / Old 215 Frontage Road Traffic Signal	T-31
Elder Avenue / Kitching Street Traffic Signal	T-32
Elder Avenue / Lasselle Street Traffic Signal	T-33
Elder Avenue / Morrison Street Traffic Signal	T-34
Elsworth Street / Dracaea Avenue Modern Roundabout	T-35
Encilia Avenue (formerly Eucalyptus Avenue) / Quincy Street Traffic Signal	T-36
Encilia Avenue (formerly Eucalyptus Avenue) / Redlands Boulevard Traffic Signal	T-37
Encilia Avenue (formerly Eucalyptus Avenue) / World Logistics Center Parkway Traffic Signal	T-38
Eucalyptus Avenue / Indian Street Traffic Signal	T-39
Eucalyptus Avenue / Kitching Street Traffic Signal	T-40
Eucalyptus Avenue / Lasselle Street Traffic Signal	T-41
Eucalyptus Avenue (formerly Fir Avenue) / Encilia Avenue (formerly Eucalyptus Avenue) Traffic Signal	T-42
Eucalyptus Avenue (formerly Fir Avenue) / Quincy Street Traffic Signal	T-43
Eucalyptus Avenue (formerly Fir Avenue) / Sinclair Street Traffic Signal	T-44
Heacock Street / Lake Summit Drive Traffic Signal	T-45
Indian Street / Hemlock Avenue Traffic Signal	T-46
Indian Street / Sundial Way Traffic Signal	T-47
Interconnect Installation	T-48
Ironwood Avenue / Avocado Lane Traffic Signal	T-49

**CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond**

<u>Project Name</u>	<u>Page #</u>
<i>Traffic Signals</i>	
Ironwood Avenue / Lasselle Street Traffic Signal	T-50
Ironwood Avenue / Quincy Street Traffic Signal	T-51
Ironwood Avenue / Sinclair Street Traffic Signal	T-52
Ironwood Avenue / Theodore Street Traffic Signal	T-53
John F. Kennedy Drive / Redlands Boulevard / Cactus Avenue Traffic Signal	T-54
Kitching Street / Bay Avenue Traffic Signal	T-55
Kitching Street / Globe Street Traffic Signal	T-56
Krameria Avenue / Indian Street Traffic Signal	T-57
Lasselle Street / Alessandro Boulevard Traffic Signal	T-58
Moreno Beach Drive / Alessandro Boulevard Traffic Signal	T-59
Moreno Beach Drive / Championship Drive Traffic Signal	T-60
Moreno Beach Drive / Cottonwood Avenue Traffic Signal	T-61
Moreno Beach Drive / Ironwood Avenue Traffic Signal	T-62
Moreno Beach Drive / Locust Avenue Traffic Signal	T-63
Nason Street / Clubhouse Drive Traffic Signal	T-64
Nason Street / Ironwood Avenue Traffic Signal	T-65
Oliver Street / John F. Kennedy Drive Traffic Signal	T-66
Perris Boulevard / Dracaea Avenue Traffic Signal	T-67
Perris Boulevard / Eucalyptus Avenue Traffic Signal	T-68
Perris Boulevard / Santiago Drive Traffic Signal	T-69
Pigeon Pass Road / Seabrook Lane Traffic Signal	T-70
Redlands Boulevard / Ironwood Avenue Traffic Signal	T-71
Sunnymead Boulevard / Indian Street Traffic Signal	T-72
Sunnymead Boulevard / Kitching Street Traffic Signal	T-73
Sunnymead Ranch Parkway / Pigeon Pass Road Traffic Signal	T-74
Valley Springs Parkway / Eucalyptus Avenue Traffic Signal	T-75

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Alessandro Boulevard / Day Street Traffic Signal</p> <p>Department / Division: Public Works Department / Transportation Engineering Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>					
<p>Project Location Map:</p> 							
<p>Project Description: This project will relocate existing traffic signal equipment that is not at its ultimate location and provide left turn phasing in the north/south direction. The work would be undertaken at the same time that road widening occurs.</p> <p>Justification or Significance of Improvement: Modification of signalized intersections to place equipment at its ultimate location is a key component of completing the City's road infrastructure.</p> <p>Estimated Maintenance Costs: Annual average costs associated with traffic signal maintenance are approximately \$3,500 per traffic signal. Although actual maintenance costs may vary, this cost is based on the City's historical maintenance costs for traffic signals. Currently no new source has been identified to fund the maintenance of the new traffic signal(s) in this project.</p>							
<p>Council District(s):</p> <p><input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>							
<p>FY 21/22 - FY 22/23 Budget</p>							
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other						60,800 121,500	60,800 121,500
PROJECT TOTAL	0	0	0	0	0	182,300	182,300
<p>FUNDING SOURCE</p>							
Unfunded UNF						182,300	182,300
REVENUE TOTAL	0	0	0	0	0	182,300	182,300

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Alessandro Boulevard (Future) / Gilman Springs Road Traffic Signal

Department / Division: Public Works Department / Transportation Engineering Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Description:

This project will signalize the intersection of Alessandro Boulevard (Future) / Gilman Springs Road. This intersection is included in the City's future traffic signal data base for signalization. Future traffic signals will be constructed at half-mile spacing.

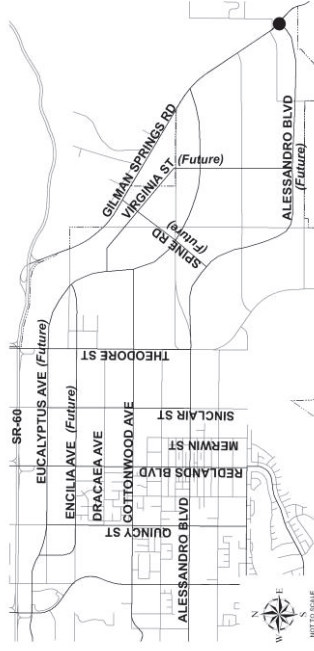
Justification or Significance of Improvement:

This signal will be conditioned for design and construction either by the developers or by the City as the development occurs within the vicinity of this intersection. The traffic signal will be completed using DIF funds.

Estimated Maintenance Costs:

Annual average costs associated with traffic signal maintenance are approximately \$3,500 per traffic signal. Although actual maintenance costs may vary, this cost is based on the City's historical maintenance costs for traffic signals. Currently no new source has been identified to fund the maintenance of the new traffic signal(s) in this project.

Project Location Map:



Council District(s):

District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						14,600 75,300 266,100
PROJECT TOTAL	0	0	0	0	356,000	356,000
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				Total
Unfunded UNF						356,000
REVENUE TOTAL	0	0	0	0	356,000	356,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Alessandro Boulevard / Quincy Street Traffic Signal

Department / Division: Public Works Department / Transportation Engineering Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:

Project Description:
 This project will signalize the intersection of Alessandro Boulevard / Quincy Street. This intersection is included in the City's future traffic signal data base for signalization. Future traffic signals will be constructed at half-mile spacing.

Justification or Significance of Improvement:
 This signal will be conditioned for design and construction either by the developers or by the City as the development occurs within the vicinity of this intersection. The traffic signal will be completed using DIF funds.

Estimated Maintenance Costs:
 Annual average costs associated with traffic signal maintenance are approximately \$3,500 per traffic signal. Although actual maintenance costs may vary, this cost is based on the City's historical maintenance costs for traffic signals. Currently no new source has been identified to fund the maintenance of the new traffic signal(s) in this project.

Council District(s):
 District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						
PROJECT TOTAL	0	0	0	0	356,000	356,000
FUNDING SOURCE	Budget FY 2020/2021	FY 2025/2026 and Beyond				Total
Unfunded UNF						
REVENUE TOTAL	0	0	0	0	356,000	356,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Alessandro Boulevard / Redlands Boulevard Traffic Signal</p> <p>Department / Division: Public Works Department / Transportation Engineering Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>																												
<p>Project Location Map:</p>																														
<p>Project Description: This project will signalize the intersection of Alessandro Boulevard / Redlands Boulevard. This intersection is included in the City's future traffic signal data base for signalization. Future traffic signals will be constructed at half-mile spacing.</p> <p>Justification or Significance of Improvement: This signal will be conditioned for design and construction either by the developers or by the City as the development occurs within the vicinity of this intersection. The traffic signal will be completed using DIF funds.</p> <p>Estimated Maintenance Costs: Annual average costs associated with traffic signal maintenance are approximately \$3,500 per traffic signal. Although actual maintenance costs may vary, this cost is based on the City's historical maintenance costs for traffic signals. Currently no new source has been identified to fund the maintenance of the new traffic signal(s) in this project.</p>																														
<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>																														
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		FY 21/22 - FY 22/23 Budget																												
PROJECT PHASE	Budget FY 2020/2021	New Request	New Request	New Request	Total																									
		FY 2021/2022	FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond																									
Prelim. Eng. / Environ. Design Right of Way Construction Other																														
PROJECT TOTAL	0	0	0	0	356,000																									
<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">FUNDING SOURCE</th> <th style="text-align: center;">Budget FY 2020/2021</th> <th style="text-align: center;">New Request FY 2021/2022</th> <th style="text-align: center;">New Request FY 2022/2023</th> <th style="text-align: center;">New Request FY 2023/2024</th> <th style="text-align: center;">New Request FY 2024/2025 and Beyond</th> <th style="text-align: center;">Total</th> </tr> </thead> <tbody> <tr> <td>Unfunded UNF</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>REVENUE TOTAL</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">356,000</td> <td style="text-align: center;">356,000</td> </tr> </tbody> </table>			FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	New Request FY 2023/2024	New Request FY 2024/2025 and Beyond	Total	Unfunded UNF							REVENUE TOTAL	0	0	0	0	356,000	356,000							
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	New Request FY 2023/2024	New Request FY 2024/2025 and Beyond	Total																								
Unfunded UNF																														
REVENUE TOTAL	0	0	0	0	356,000	356,000																								

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Alessandro Boulevard / Sinclair Street Traffic Signal

Department / Division: Public Works Department / Transportation Engineering Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Description:

This project will signalize the intersection of Alessandro Boulevard / Sinclair Street. This intersection is included in the City's future traffic signal data base for signalization. Future traffic signals will be constructed at half-mile spacing.

Justification or Significance of Improvement:

This signal will be conditioned for design and construction either by the developers or by the City as the development occurs within the vicinity of this intersection. The traffic signal will be completed using DIF funds.

Estimated Maintenance Costs:

Annual average costs associated with traffic signal maintenance are approximately \$3,500 per traffic signal. Although actual maintenance costs may vary, this cost is based on the City's historical maintenance costs for traffic signals. Currently no new source has been identified to fund the maintenance of the new traffic signal(s) in this project.

Project Location Map:



Council District(s):

District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						
PROJECT TOTAL	0	0	0	0	356,000	356,000
FUNDING SOURCE	Budget FY 2020/2021	FY 2025/2026 and Beyond				Total
Unfunded UNF						
REVENUE TOTAL	0	0	0	0	356,000	356,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Alessandro Boulevard / World Logistics Center Parkway Traffic Signal</p> <p>Department / Division: Public Works Department / Transportation Engineering Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>																																										
<p>Project Location Map:</p>																																												
<p>Project Description: This project will signalize the intersection of Alessandro Boulevard / Theodore Street. This intersection is included in the City's future traffic signal data base for signalization. Future traffic signals will be constructed at half-mile spacing.</p> <p>Justification or Significance of Improvement: This signal will be conditioned for design and construction either by the developers or by the City as the development occurs within the vicinity of this intersection. The traffic signal will be completed using DIF funds.</p> <p>Estimated Maintenance Costs: Annual average costs associated with traffic signal maintenance are approximately \$3,500 per traffic signal. Although actual maintenance costs may vary, this cost is based on the City's historical maintenance costs for traffic signals. Currently no new source has been identified to fund the maintenance of the new traffic signal(s) in this project.</p>																																												
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Unfunded UNF					356,000	356,000																																						
REVENUE TOTAL	0	0	0	0	356,000	356,000																																						

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Cactus Avenue / Quincy Street Traffic Signal

Department / Division: Public Works Department / Transportation Engineering Division

Project Status:
 New
 Deleted
 In Progress
 On Hold
 Completed

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:

Council District(s):
 District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						14,600 75,300 266,100
PROJECT TOTAL	0	0	0	0	356,000	356,000
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				Total
Unfunded UNF						356,000
REVENUE TOTAL	0	0	0	0	356,000	356,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Cottonwood Avenue / Elsworth Street Traffic Signal

Department / Division: Public Works Department / Transportation Engineering Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Description:
This project will signalize the intersection of Cottonwood Avenue and Elsworth Street.

Justification or Significance of Improvement:
The installation of this traffic signal will remove an existing all-way stop.

Estimated Maintenance Costs:
Annual average costs associated with traffic signal maintenance are approximately \$3,500 per traffic signal. Although actual maintenance costs may vary, this cost is based on the City's historical maintenance costs for traffic signals. Currently no new source has been identified to fund the maintenance of the new traffic signal(s) in this project.

Project Location Map:

Council District(s):
 District 1
 District 2
 District 3
 District 4

		FY 21/22 - FY 22/23 Budget					
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design							
Right of Way							
Construction							
Other							
PROJECT TOTAL	0	0	0	0	0	471,088	471,088
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
DIF Arterial Streets (2901)							
3301.UNF							
DIF Traffic Signals (2902)							
3302.UNF							
REVENUE TOTAL	0	0	0	0	0	471,088	471,088

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Cottonwood Avenue / Old 215 Frontage Road Traffic Signal

Department / Division: Public Works Department / Transportation Engineering Division

Project Status:
 New
 Deleted
 In Progress
 On Hold
 Completed

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Description:

This project will signalize the intersection of Cottonwood Avenue / Old 215 Frontage Road. This intersection is included in the City's future traffic signal data base for signalization. Future traffic signals will be constructed at half-mile spacing.

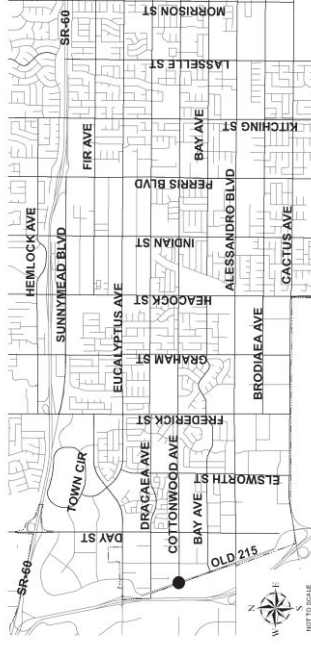
Justification or Significance of Improvement:

This signal will be conditioned for design and construction either by the developers or by the City as the development occurs within the vicinity of this intersection. The traffic signal will be completed using DIF funds.

Estimated Maintenance Costs:

Annual average costs associated with traffic signal maintenance are approximately \$3,500 per traffic signal. Although actual maintenance costs may vary, this cost is based on the City's historical maintenance costs for traffic signals. Currently no new source has been identified to fund the maintenance of the new traffic signal(s) in this project.

Project Location Map:



Council District(s):

District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						14,600 75,300 266,100
PROJECT TOTAL	0	0	0	0	0	356,000
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				Total
Unfunded UNF						356,000
REVENUE TOTAL	0	0	0	0	0	356,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Cottonwood Avenue / Quincy Street Traffic Signal</p> <p>Department / Division: Public Works Department / Transportation Engineering Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>																								
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REVENUE TOTAL	0	0	0	0	0	356,000	356,000																			

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Cottonwood Avenue / Redlands Boulevard Traffic Signal

Department / Division: Public Works Department / Transportation Engineering Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Description:

This project will relocate existing traffic signal equipment that is not at its ultimate location. The work would be undertaken at the same time that road widening occurs.

Justification or Significance of Improvement:

Modification of signalized intersections to place equipment at its ultimate location is a key component of completing the City's road infrastructure.

Estimated Maintenance Costs:

Annual average costs associated with traffic signal maintenance are approximately \$3,500 per traffic signal. Although actual maintenance costs may vary, this cost is based on the City's historical maintenance costs for traffic signals. Currently no new source has been identified to fund the maintenance of the new traffic signal(s) in this project.

Project Location Map:



Council District(s):

District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						14,600 75,300 266,100
PROJECT TOTAL	0	0	0	0	356,000	356,000
FUNDING SOURCE	Budget FY 2020/2021	FY 2025/2026 and Beyond				Total
Unfunded UNF						356,000
REVENUE TOTAL	0	0	0	0	356,000	356,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Cottonwood Avenue / Sinclair Street Traffic Signal</p> <p>Department / Division: Public Works Department / Transportation Engineering Division</p> <p>Project Description: This project will signalize the intersection of Cottonwood Avenue / Sinclair Street. This intersection is included in the City's future traffic signal data base for signalization. Future traffic signals will be constructed at half-mile spacing.</p> <p>Justification or Significance of Improvement: This signal will be conditioned for design and construction either by the developers or by the City as the development occurs within the vicinity of this intersection. The traffic signal will be completed using DIF funds.</p> <p>Estimated Maintenance Costs: Annual average costs associated with traffic signal maintenance are approximately \$3,500 per traffic signal. Although actual maintenance costs may vary, this cost is based on the City's historical maintenance costs for traffic signals. Currently no new source has been identified to fund the maintenance of the new traffic signal(s) in this project.</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p> <p>Project Location Map:</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>																														
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		FY 21/22 - FY 22/23 Budget																														
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total																									
Prelim. Eng. / Environ. Design Right of Way Construction Other						14,600 75,300	14,600 75,300																									
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FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total																									
Unfunded UNF						356,000	356,000																									
REVENUE TOTAL	0	0	0	0	0	356,000	356,000																									

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Cottonwood Avenue / World Logistics Center Parkway Traffic Signal

Department / Division: Public Works Department / Transportation Engineering Division

Project Status:
 New
 Deleted
 In Progress
 On Hold
 Completed

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Description:

This project will signalize the intersection of Cottonwood Avenue / Theodore Street. This intersection is included in the City's future traffic signal data base for signalization. Future traffic signals will be constructed at half-mile spacing.

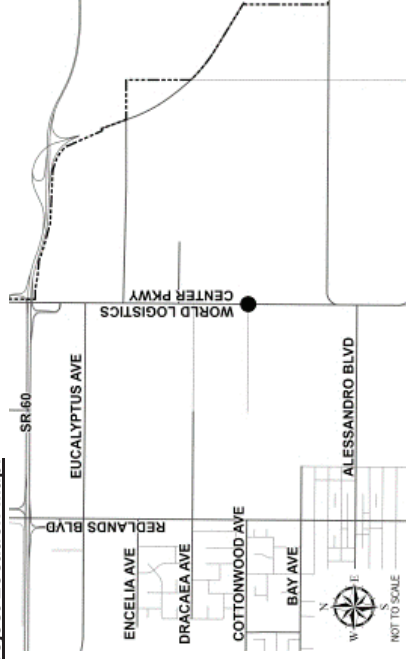
Justification or Significance of Improvement:

This signal will be conditioned for design and construction either by the developers or by the City as the development occurs within the vicinity of this intersection. The traffic signal will be completed using DIF funds.

Estimated Maintenance Costs:

Annual average costs associated with traffic signal maintenance are approximately \$3,500 per traffic signal. Although actual maintenance costs may vary, this cost is based on the City's historical maintenance costs for traffic signals. Currently no new source has been identified to fund the maintenance of the new traffic signal(s) in this project.

Project Location Map:



Council District(s):

District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total	
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond		
Prelim. Eng. / Environ. Design Right of Way Construction Other						14,600 75,300 266,100	
PROJECT TOTAL	0	0	0	0	356,000	356,000	
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				FY 2025/2026 and Beyond	Total
Unfunded UNF						356,000	356,000
REVENUE TOTAL	0	0	0	0	356,000	356,000	

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Day Street / Cottonwood Avenue Traffic Signal

Department / Division: Public Works Department / Transportation Engineering Division

Project Status:
 New
 Deleted
 In Progress
 On Hold
 Completed

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:

Project Description:
 This project will relocate existing traffic signal equipment that is not at its ultimate location. The work would be undertaken at the same time that road widening occurs.

Justification or Significance of Improvement:
 Modification of signalized intersections to place equipment at its ultimate location is a key component of completing the City's road infrastructure.

Estimated Maintenance Costs:
 Annual average costs associated with traffic signal maintenance are approximately \$3,500 per traffic signal. Although actual maintenance costs may vary, this cost is based on the City's historical maintenance costs for traffic signals. Currently no new source has been identified to fund the maintenance of the new traffic signal(s) in this project.

Council District(s):
 District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						30,400
PROJECT TOTAL	0	0	0	0	0	121,600
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				Total
Unfunded UNF						121,600
REVENUE TOTAL	0	0	0	0	0	121,600

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Day Street / Dracaea Avenue Traffic Signal

Department / Division: Public Works Department / Transportation Engineering Division

Project Status:
 New
 Deleted
 In Progress
 On Hold
 Completed

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Description:

This project will relocate existing traffic signal equipment that is not at its ultimate location. The work would be undertaken at the same time that road widening occurs.

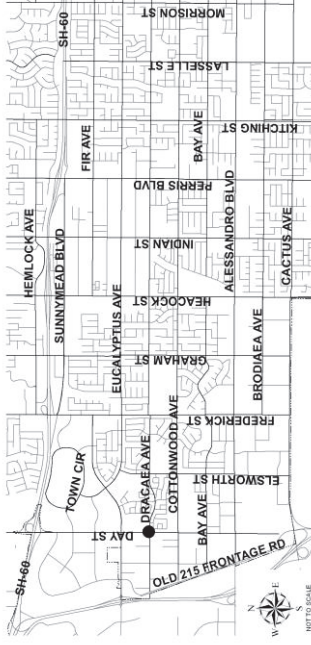
Justification or Significance of Improvement:

Modification of signalized intersections to place equipment at its ultimate location is a key component of completing the City's road infrastructure.

Estimated Maintenance Costs:

Annual average costs associated with traffic signal maintenance are approximately \$3,500 per traffic signal. Although actual maintenance costs may vary, this cost is based on the City's historical maintenance costs for traffic signals. Currently no new source has been identified to fund the maintenance of the new traffic signal(s) in this project.

Project Location Map:



Council District(s):

District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						60,800 121,500 182,300
PROJECT TOTAL	0	0	0	0	0	182,300
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				Total
Unfunded UNF						182,300
REVENUE TOTAL	0	0	0	0	0	182,300

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Day Street / Eucalyptus Avenue Traffic Signal

Department / Division: Public Works Department / Transportation Engineering Division

Project Status:
 New
 In Progress
 Completed

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Description:

This project will relocate existing traffic signal equipment that is not at its ultimate location. The work would be undertaken at the same time that road widening occurs.

Justification or Significance of Improvement:

Modification of signalized intersections to place equipment at its ultimate location is a key component of completing the City's road infrastructure.

Estimated Maintenance Costs:

Annual average costs associated with traffic signal maintenance are approximately \$3,500 per traffic signal. Although actual maintenance costs may vary, this cost is based on the City's historical maintenance costs for traffic signals. Currently no new source has been identified to fund the maintenance of the new traffic signal(s) in this project.

Project Location Map:



Council District(s):

District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						60,800 182,300 182,300
PROJECT TOTAL	0	0	0	0	243,100	243,100
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				Total
Unfunded UNF						243,100 243,100
REVENUE TOTAL	0	0	0	0	243,100	243,100

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Day Street / Old 215 Frontage Road Traffic Signal

Department / Division: Public Works Department / Transportation Engineering Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Description:

This project will signalize the intersection of Day Street / Old 215 Frontage Road. This intersection is included in the City's future traffic signal data base for signalization. Future traffic signals will be constructed at half-mile spacing.

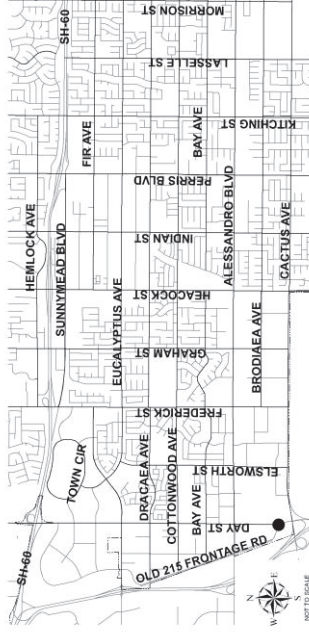
Justification or Significance of Improvement:

This signal will be conditioned for design and construction either by the developers or by the City as the development occurs within the vicinity of this intersection. The traffic signal will be completed using DIF funds.

Estimated Maintenance Costs:

Annual average costs associated with traffic signal maintenance are approximately \$3,500 per traffic signal. Although actual maintenance costs may vary, this cost is based on the City's historical maintenance costs for traffic signals. Currently no new source has been identified to fund the maintenance of the new traffic signal(s) in this project.

Project Location Map:



Council District(s):

District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						14,600 75,300 266,100
PROJECT TOTAL	0	0	0	0	356,000	356,000
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				Total
Unfunded UNF						356,000
REVENUE TOTAL	0	0	0	0	356,000	356,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Elder Avenue / Kitching Street Traffic Signal</p> <p>Department / Division: Public Works Department / Transportation Engineering Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> Deleted <input type="checkbox"/> In Progress <input type="checkbox"/> On Hold <input type="checkbox"/> Completed</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>					
<p>Project Location Map:</p>							
<p>Project Description: This project will signalize the intersection of Elder Avenue / Kitching Street. This intersection is included in the City's future traffic signal data base for signalization. Future traffic signals will be constructed at half-mile spacing.</p> <p>Justification or Significance of Improvement: This signal will be conditioned for design and construction either by the developers or by the City as the development occurs within the vicinity of this intersection. The traffic signal will be completed using DIF funds.</p> <p>Estimated Maintenance Costs: Annual average costs associated with traffic signal maintenance are approximately \$3,500 per traffic signal. Although actual maintenance costs may vary, this cost is based on the City's historical maintenance costs for traffic signals. Currently no new source has been identified to fund the maintenance of the new traffic signal(s) in this project.</p>							
<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input checked="" type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>							
<p>FY 21/22 - FY 22/23 Budget</p>							
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other							
PROJECT TOTAL	0	0	0	0	0	356,000	356,000
<p>FUNDING SOURCE</p>							
Unfunded UNF							
REVENUE TOTAL	0	0	0	0	0	356,000	356,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Elder Avenue / Lasselle Street Traffic Signal</p> <p>Department / Division: Public Works Department / Transportation Engineering Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>																														
<p>Project Location Map:</p>																																
<p>Project Description: This project will signalize the intersection of Elder Avenue / Lasselle Street. This intersection is included in the City's future traffic signal data base for signalization. Future traffic signals will be constructed at half-mile spacing.</p> <p>Justification or Significance of Improvement: This signal will be conditioned for design and construction either by the developers or by the City as the development occurs within the vicinity of this intersection. The traffic signal will be completed using DIF funds.</p> <p>Estimated Maintenance Costs: Annual average costs associated with traffic signal maintenance are approximately \$3,500 per traffic signal. Although actual maintenance costs may vary, this cost is based on the City's historical maintenance costs for traffic signals. Currently no new source has been identified to fund the maintenance of the new traffic signal(s) in this project.</p>																																
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<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2"></th> <th colspan="4" style="text-align: center;">FY 21/22 - FY 22/23 Budget</th> </tr> <tr> <th style="width:30%;">PROJECT PHASE</th> <th style="width:10%;">Budget FY 2020/2021</th> <th style="width:10%;">New Request FY 2021/2022</th> <th style="width:10%;">New Request FY 2022/2023</th> <th style="width:10%;">FY 2023/2024</th> <th style="width:10%;">FY 2024/2025</th> <th style="width:10%;">FY 2025/2026 and Beyond</th> <th style="width:10%;">Total</th> </tr> </thead> <tbody> <tr> <td>Prelim. Eng. / Environ. Design Right of Way Construction Other</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>PROJECT TOTAL</td> <td align="right">0</td> <td align="right">0</td> <td align="right">0</td> <td align="right">0</td> <td align="right">0</td> <td align="right">356,000</td> <td align="right">356,000</td> </tr> </tbody> </table>					FY 21/22 - FY 22/23 Budget				PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total	Prelim. Eng. / Environ. Design Right of Way Construction Other								PROJECT TOTAL	0	0	0	0	0	356,000	356,000
		FY 21/22 - FY 22/23 Budget																														
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total																									
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Unfunded UNF																																
REVENUE TOTAL	0	0	0	0	0	356,000	356,000																									

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Elder Avenue / Morrison Street Traffic Signal</p> <p>Department / Division: Public Works Department / Transportation Engineering Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>																																														
<p>Project Location Map:</p>																																																
<p>Project Description: This project will signalize the intersection of Elder Avenue / Morrison Street. This intersection is included in the City's future traffic signal data base for signalization. Future traffic signals will be constructed at half-mile spacing.</p> <p>Justification or Significance of Improvement: This signal will be conditioned for design and construction either by the developers or by the City as the development occurs within the vicinity of this intersection. The traffic signal will be completed using DIF funds.</p> <p>Estimated Maintenance Costs: Annual average costs associated with traffic signal maintenance are approximately \$3,500 per traffic signal. Although actual maintenance costs may vary, this cost is based on the City's historical maintenance costs for traffic signals. Currently no new source has been identified to fund the maintenance of the new traffic signal(s) in this project.</p>																																																
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		FY 21/22 - FY 22/23 Budget																																														
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FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total																																									
Unfunded UNF						356,000	356,000																																									
REVENUE TOTAL	0	0	0	0	0	356,000	356,000																																									

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Elsworth Street / Dracaea Avenue Modern Roundabout

Department / Division: Public Works Department / Transportation Engineering Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:

Justification or Significance of Improvement:
 This project is part of a study to determine the effectiveness of the roundabout configuration.

Estimated Maintenance Costs:
 Street maintenance costs over a 20 year period are estimated to average almost \$12,000 per 13 foot wide lane mile per year. Currently no new funding source has been identified to fund these maintenance costs.

Council District(s):
 District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other				60,800 179,800 473,900		60,800 179,800 473,900
PROJECT TOTAL	0	0	0	714,500	0	714,500
FUNDING SOURCE	Budget FY 2020/2021	FY 2021/2022				Total
DIF Traffic Signals (2902) 3302.UNF				714,500		714,500
REVENUE TOTAL	0	0	0	714,500	0	714,500

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Encilia Avenue (formerly Eucalyptus Avenue) / Quincy Street Traffic Signal</p> <p>Department / Division: Public Works Department / Transportation Engineering Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>
<p>Project Location Map:</p>		
<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>		

Project Description:
This project will signalize the intersection of Encilia Avenue (formerly Eucalyptus Avenue) / Quincy Street. This intersection is included in the City's future traffic signal data base for signalization. Future traffic signals will be constructed at half-mile spacing.

Justification or Significance of Improvement:
This signal will be conditioned for design and construction either by the developers or by the City as the development occurs within the vicinity of this intersection. The traffic signal will be completed using DIF funds.

Estimated Maintenance Costs:
Annual average costs associated with traffic signal maintenance are approximately \$3,500 per traffic signal. Although actual maintenance costs may vary, this cost is based on the City's historical maintenance costs for traffic signals. Currently no new source has been identified to fund the maintenance of the new traffic signal(s) in this project.

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	
Prelim. Eng. / Environ. Design Right of Way Construction Other						14,600 75,300 266,100 356,000
PROJECT TOTAL	0	0	0	0	0	356,000
FUNDING SOURCE	Budget FY 2020/2021	FY 2025/2026 and Beyond				Total
Unfunded UNF						356,000
REVENUE TOTAL	0	0	0	0	0	356,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Encilia Avenue (formerly Eucalyptus Avenue) / Redlands Boulevard Traffic Signal</p> <p>Department / Division: Public Works Department / Transportation Engineering Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>
<p>Project Description: This project will signalize the intersection of Encilia Avenue (formerly Eucalyptus Avenue) / Redlands Boulevard. This intersection is included in the City's future traffic signal data base for signalization. Future traffic signals will be constructed at half-mile spacing.</p> <p>Justification or Significance of Improvement: This signal will be conditioned for design and construction either by the developers or by the City as the development occurs within the vicinity of this intersection. The traffic signal will be completed using DIF funds.</p> <p>Estimated Maintenance Costs: Annual average costs associated with traffic signal maintenance are approximately \$3,500 per traffic signal. Although actual maintenance costs may vary, this cost is based on the City's historical maintenance costs for traffic signals. Currently no new source has been identified to fund the maintenance of the new traffic signal(s) in this project.</p>		
<p>Project Location Map:</p>		
<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>		

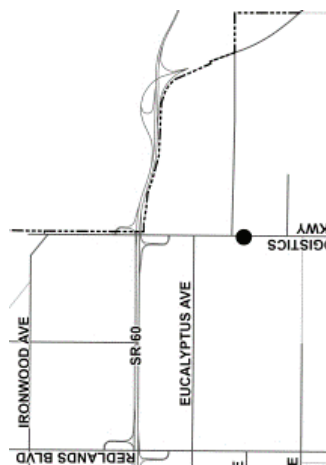
PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						14,600 75,300 266,100 356,000
PROJECT TOTAL	0	0	0	0	0	356,000
FUNDING SOURCE	Budget FY 2020/2021	FY 2025/2026 and Beyond				Total
Unfunded UNF						356,000
REVENUE TOTAL	0	0	0	0	0	356,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Encelia Avenue (formerly Eucalyptus Avenue) / World Logistics Center Parkway Traffic Signal

Department / Division: Public Works Department / Transportation Engineering Division

Project Status:
 New
 Deleted
 In Progress
 On Hold
 Completed

Project Location Map:


Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Council District(s):
 District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						14,600 75,300 266,100 356,000
PROJECT TOTAL	0	0	0	0	0	356,000
FUNDING SOURCE	Budget FY 2020/2021	FY 2025/2026 and Beyond				Total
Unfunded UNF						356,000
REVENUE TOTAL	0	0	0	0	0	356,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Eucalyptus Avenue / Indian Street Traffic Signal

Department / Division: Public Works Department / Transportation Engineering Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Description:

This project will signalize the intersection of Eucalyptus Avenue / Indian Street. This intersection is included in the City's future traffic signal data base for signalization. Future traffic signals will be constructed at half-mile spacing.

Justification or Significance of Improvement:

This signal will be conditioned for design and construction either by the developers or by the City as the development occurs within the vicinity of this intersection. The traffic signal will be completed using DIF funds.

Estimated Maintenance Costs:

Annual average costs associated with traffic signal maintenance are approximately \$3,500 per traffic signal. Although actual maintenance costs may vary, this cost is based on the City's historical maintenance costs for traffic signals. Currently no new source has been identified to fund the maintenance of the new traffic signal(s) in this project.

Project Location Map:



Council District(s):

District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						14,600 75,300 266,100 356,000
PROJECT TOTAL	0	0	0	0	0	356,000
FUNDING SOURCE	Budget FY 2020/2021					Total
Unfunded UNF						356,000
REVENUE TOTAL	0	0	0	0	0	356,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Eucalyptus Avenue / Kitching Street Traffic Signal

Department / Division: Public Works Department / Transportation Engineering Division

Project Status:
 New
 Deleted
 In Progress
 On Hold
 Completed

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:

Project Description:
 This project constructed a portion of street improvements and proposes to install a traffic signal at the intersection of Kitching Street and Eucalyptus Avenue. The street improvements were completed in June 2009 to improve the intersection level of service but the traffic signal is deferred to the future.

Street Construction: Completed
 Traffic Signal Construction: Deferred as dictated by traffic conditions.

This project was previously funded as DIF Arterial Streets and Capital Projects.


Justification and Significance of Improvement:
 The traffic signal improvements will facilitate traffic flow through the intersection.

Estimated Maintenance Costs:
 Annual average costs associated with traffic signal maintenance are approximately \$3,500 per traffic signal. Although actual maintenance costs may vary, this cost is based on the City's historical maintenance costs for traffic signals. Currently no new source has been identified to fund the maintenance of the new traffic signal(s) in this project.

Council District(s):
 District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2018/2019	FY 19/20 - FY 20/21 Budget				Total
		New Request FY 2019/2020	New Request FY 2020/2021	FY 2021/2022	FY 2022/2023 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other				12,200 24,300 294,000		12,200 24,300 294,000
PROJECT TOTAL	0	0	0	330,500	0	330,500
FUNDING SOURCE	Budget FY 2018/2019	FY 2021/2022				Total
Unfunded UNF				330,500		330,500
REVENUE TOTAL	0	0	0	330,500	0	330,500

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Eucalyptus Avenue / Lasselle Street Traffic Signal</p> <p>Department / Division: Public Works Department / Transportation Engineering Division</p> <p>Project Status: <input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p> <p>Project Location Map: </p>	<p>Project Priority in CIP Category: <input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p> <p>Council District(s): <input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>						
<p>Project Description: This project will signalize the intersection of Eucalyptus Avenue / Lasselle Street. This intersection is included in the City's future traffic signal data base for signalization. Future traffic signals will be constructed at half-mile spacing.</p> <p>Justification or Significance of Improvement: This signal will be conditioned for design and construction either by the developers or by the City as the development occurs within the vicinity of this intersection. The traffic signal will be completed using DIF funds.</p> <p>Estimated Maintenance Costs: Annual average costs associated with traffic signal maintenance are approximately \$3,500 per traffic signal. Although actual maintenance costs may vary, this cost is based on the City's historical maintenance costs for traffic signals. Currently no new source has been identified to fund the maintenance of the new traffic signal(s) in this project.</p>							
FY 21/22 - FY 22/23 Budget							
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other	0					14,600 75,300 266,100	14,600 75,300 266,100
PROJECT TOTAL		0	0	0	0	356,000	356,000
FUNDING SOURCE							
Unfunded UNF						356,000	356,000
REVENUE TOTAL		0	0	0	0	356,000	356,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Eucalyptus Avenue (formerly Fir Avenue) / Encilia Avenue (formerly Eucalyptus Avenue) Traffic Signal</p> <p>Department / Division: Public Works Department / Transportation Engineering Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>
<p>Project Location Map:</p>		
<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>		

Project Description:
This project will signalize the intersection of Eucalyptus Avenue (formerly Fir Avenue) / Encilia Avenue (formerly Eucalyptus Avenue). This intersection is included in the City's future traffic signal data base for signalization. Future traffic signals will be constructed at half-mile spacing.

Justification or Significance of Improvement:
This signal will be conditioned for design and construction either by the developers or by the City as the development occurs within the vicinity of this intersection. The traffic signal will be completed using DIF funds.

Estimated Maintenance Costs:
Annual average costs associated with traffic signal maintenance are approximately \$3,500 per traffic signal. Although actual maintenance costs may vary, this cost is based on the City's historical maintenance costs for traffic signals. Currently no new source has been identified to fund the maintenance of the new traffic signal(s) in this project.

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						14,600 75,300 266,100
PROJECT TOTAL	0	0	0	0	0	356,000
FUNDING SOURCE	Budget FY 2020/2021	FY 2025/2026 and Beyond				Total
Unfunded UNF						356,000
REVENUE TOTAL	0	0	0	0	0	356,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Eucalyptus Avenue (formerly Fir Avenue) / Quincy Street Traffic Signal</p> <p>Department / Division: Public Works Department / Transportation Engineering Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>					
<p>Project Location Map:</p>							
<p>Project Description: This project will signalize the intersection of Eucalyptus Avenue (formerly Fir Avenue) / Quincy Street. This intersection is included in the City's future traffic signal data base for signalization. Future traffic signals will be constructed at half-mile spacing.</p> <p>Justification or Significance of Improvement: This signal will be conditioned for design and construction either by the developers or by the City as the development occurs within the vicinity of this intersection. The traffic signal will be completed using DIF funds.</p> <p>Estimated Maintenance Costs: Annual average costs associated with traffic signal maintenance are approximately \$3,500 per traffic signal. Although actual maintenance costs may vary, this cost is based on the City's historical maintenance costs for traffic signals. Currently no new source has been identified to fund the maintenance of the new traffic signal(s) in this project.</p>							
<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>							
<p>FY 21/22 - FY 22/23 Budget</p>							
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other						14,600 75,300 266,100	14,600 75,300 266,100
PROJECT TOTAL	0	0	0	0	0	356,000	356,000
<p>FUNDING SOURCE</p>							
Unfunded UNF						356,000	356,000
REVENUE TOTAL	0	0	0	0	0	356,000	356,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Eucalyptus Avenue (formerly Fir Avenue) / Sinclair Street Traffic Signal

Department / Division: Public Works Department / Transportation Engineering Division

Project Status:
 New
 Deleted
 In Progress
 On Hold
 Completed

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:

Justification or Significance of Improvement:
 This project will signalize the intersection of Eucalyptus Avenue (formerly Fir Avenue) / Sinclair Street. This intersection is included in the City's future traffic signal data base for signalization. Future traffic signals will be constructed at half-mile spacing.

Estimated Maintenance Costs:
 Annual average costs associated with traffic signal maintenance are approximately \$3,500 per traffic signal. Although actual maintenance costs may vary, this cost is based on the City's historical maintenance costs for traffic signals. Currently no new source has been identified to fund the maintenance of the new traffic signal(s) in this project.

Council District(s):
 District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total	
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond		
Prelim. Eng. / Environ. Design Right of Way Construction Other						14,600 75,300 266,100 356,000	
PROJECT TOTAL	0	0	0	0	0	356,000	
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				FY 2025/2026 and Beyond	Total
Unfunded UNF						356,000	356,000
REVENUE TOTAL	0	0	0	0	0	356,000	356,000


CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Heacock Street / Lake Summit Drive Traffic Signal

Department / Division: Public Works Department / Transportation Engineering Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:


Council District(s):
 District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						14,600 75,300 266,100
PROJECT TOTAL	0	0	0	0	356,000	356,000
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				Total
Unfunded UNF						356,000
REVENUE TOTAL	0	0	0	0	356,000	356,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Indian Street / Hemlock Avenue Traffic Signal

Department / Division: Public Works Department / Transportation Engineering Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:

Project Description:
 This project will relocate existing traffic signal equipment that is not at its ultimate location. The work would be undertaken at the same time that road widening occurs.


Justification or Significance of Improvement:
 Modification of signalized intersections to place equipment at its ultimate location is a key component of completing the City's road infrastructure.

Estimated Maintenance Costs:
 Annual average costs associated with traffic signal maintenance are approximately \$3,500 per traffic signal. Although actual maintenance costs may vary, this cost is based on the City's historical maintenance costs for traffic signals. Currently no new source has been identified to fund the maintenance of the new traffic signal(s) in this project.

Council District(s):
 District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						60,800 121,500 182,300
PROJECT TOTAL	0	0	0	0	0	182,300
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				Total
Unfunded UNF						182,300
REVENUE TOTAL	0	0	0	0	0	182,300

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Indian Street / Sundial Way Traffic Signal</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> Deleted <input type="checkbox"/> In Progress <input type="checkbox"/> On Hold <input type="checkbox"/> Completed</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>	
<p>Department / Division: Public Works Department / Transportation Engineering Division</p>		<p>Project Location Map:</p> 	
<p>Project Description: This project will signalize the intersection of Indian Street / Sundial Way. This intersection is included in the City's future traffic signal data base for signalization. Future traffic signals will be constructed at half-mile spacing.</p> <p>Justification or Significance of Improvement: This signal will be conditioned for design and construction either by the developers or by the City as the development occurs within the vicinity of this intersection. The traffic signal will be completed using DIF funds.</p> <p>Estimated Maintenance Costs: Annual average costs associated with traffic signal maintenance are approximately \$3,500 per traffic signal. Although actual maintenance costs may vary, this cost is based on the City's historical maintenance costs for traffic signals. Currently no new source has been identified to fund the maintenance of the new traffic signal(s) in this project.</p>			
<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input checked="" type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>			
<p>FY 21/22 - FY 22/23 Budget</p>			
PROJECT PHASE	Budget	New Request	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other		FY 2021/2022 FY 2022/2023	FY 2023/2024 FY 2024/2025 FY 2025/2026 and Beyond
		0 0	14,600 75,300 266,100 356,000
PROJECT TOTAL			
	0	0	356,000
<p>FUNDING SOURCE</p>			
Unfunded UNF		FY 2021/2022 FY 2022/2023	FY 2023/2024 FY 2024/2025 FY 2025/2026 and Beyond
		0 0	356,000 356,000
REVENUE TOTAL			
	0	0	356,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Interconnect Installation	Project Status: <input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold	Project Priority in CIP Category: <input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)
Department / Division: Public Works Department / Transportation Engineering Division		
Project Description: This project includes 111 miles of interconnect for traffic signals throughout the City until total buildout.		
Justification or Significance of Improvement: This project will guide deployment of an Advanced Traffic Management System.		
Estimated Maintenance Costs: Annual average costs associated with traffic signal maintenance are approximately \$3,500 per traffic signal. Although actual maintenance costs may vary, this cost is based on the City's historical maintenance costs for traffic signals. Currently no new source has been identified to fund the maintenance of the new traffic signal(s) in this project.		
CITYWIDE		
Council District(s): <input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input checked="" type="checkbox"/> District 4		

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other					1,093,500 2,673,000 17,641,800	1,093,500 2,673,000 17,641,800
PROJECT TOTAL	0	0	0	0	21,408,300	21,408,300
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				Total
Unfunded UNF					21,408,300	21,408,300
REVENUE TOTAL	0	0	0	0	21,408,300	21,408,300

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Ironwood Avenue / Avocado Lane Traffic Signal</p> <p>Department / Division: Public Works Department / Transportation Engineering Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>																																																	
<p>Project Location Map:</p>																																																			
<p>Project Description: This project will signalize the intersection of Ironwood Avenue / Avocado Lane (or other nearby suitable intersection). This intersection is included in the City's future traffic signal data base for signalization. Future traffic signals will be constructed at half-mile spacing.</p> <p>Justification or Significance of Improvement: This signal will be conditioned for design and construction either by the developers or by the City as the development occurs within the vicinity of this intersection. The traffic signal will be completed using DIF funds. A traffic signal in the vicinity of Ironwood Avenue / Avocado Lane was identified as desirable during the preparation of an environmental document for the widening of Ironwood Avenue. Signalization would occur at such time as the need arises, and or in conjunction with road widening.</p> <p>Estimated Maintenance Costs: Annual average costs associated with traffic signal maintenance are approximately \$3,500 per traffic signal. Although actual maintenance costs may vary, this cost is based on the City's historical maintenance costs for traffic signals. Currently no new source has been identified to fund the maintenance of the new traffic signal(s) in this project.</p>																																																			
<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input checked="" type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>																																																			
<p>FY 21/22 - FY 22/23 Budget</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:30%;"></th> <th style="width:10%;">New Request FY 2021/2022</th> <th style="width:10%;">New Request FY 2022/2023</th> <th style="width:10%;">FY 2023/2024</th> <th style="width:10%;">FY 2024/2025</th> <th style="width:10%;">FY 2025/2026 and Beyond</th> <th style="width:10%;">Total</th> </tr> </thead> <tbody> <tr> <td>PROJECT PHASE</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Prelim. Eng. / Environ. Design</td> <td></td> <td></td> <td></td> <td></td> <td>14,600</td> <td>14,600</td> </tr> <tr> <td>Right of Way</td> <td></td> <td></td> <td></td> <td></td> <td>75,300</td> <td>75,300</td> </tr> <tr> <td>Construction</td> <td></td> <td></td> <td></td> <td></td> <td>266,100</td> <td>266,100</td> </tr> <tr> <td>Other</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>PROJECT TOTAL</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">356,000</td> <td style="text-align: right;">356,000</td> </tr> </tbody> </table>				New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total	PROJECT PHASE							Prelim. Eng. / Environ. Design					14,600	14,600	Right of Way					75,300	75,300	Construction					266,100	266,100	Other							PROJECT TOTAL	0	0	0	0	356,000	356,000
	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total																																													
PROJECT PHASE																																																			
Prelim. Eng. / Environ. Design					14,600	14,600																																													
Right of Way					75,300	75,300																																													
Construction					266,100	266,100																																													
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PROJECT TOTAL	0	0	0	0	356,000	356,000																																													
<p>FUNDING SOURCE</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:30%;"></th> <th style="width:10%;">New Request FY 2021/2022</th> <th style="width:10%;">New Request FY 2022/2023</th> <th style="width:10%;">FY 2023/2024</th> <th style="width:10%;">FY 2024/2025</th> <th style="width:10%;">FY 2025/2026 and Beyond</th> <th style="width:10%;">Total</th> </tr> </thead> <tbody> <tr> <td>Unfunded UNF</td> <td></td> <td></td> <td></td> <td></td> <td>356,000</td> <td>356,000</td> </tr> <tr> <td>REVENUE TOTAL</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">356,000</td> <td style="text-align: right;">356,000</td> </tr> </tbody> </table>				New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total	Unfunded UNF					356,000	356,000	REVENUE TOTAL	0	0	0	0	356,000	356,000																												
	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total																																													
Unfunded UNF					356,000	356,000																																													
REVENUE TOTAL	0	0	0	0	356,000	356,000																																													

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Ironwood Avenue / Lasselie Street Traffic Signal

Department / Division: Public Works Department / Transportation Engineering Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:

Project Description:
 This project will signalize the intersection of Ironwood Avenue / Lasselie Street. This intersection is included in the City's future traffic signal data base for signalization. Future traffic signals will be constructed at half-mile spacing.

Justification or Significance of Improvement:
 This signal will be conditioned for design and construction either by the developers or by the City as the development occurs within the vicinity of this intersection. The traffic signal will be completed using DIF funds.

Estimated Maintenance Costs:
 Annual average costs associated with traffic signal maintenance are approximately \$3,500 per traffic signal. Although actual maintenance costs may vary, this cost is based on the City's historical maintenance costs for traffic signals. Currently no new source has been identified to fund the maintenance of the new traffic signal(s) in this project.

Council District(s):
 District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						14,600 75,300 266,100
PROJECT TOTAL	0	0	0	0	356,000	356,000
FUNDING SOURCE	Budget FY 2020/2021	FY 2025/2026 and Beyond				Total
Unfunded UNF						356,000
REVENUE TOTAL	0	0	0	0	356,000	356,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Ironwood Avenue / Quincy Street Traffic Signal

Department / Division: Public Works Department / Transportation Engineering Division

Project Status:
 New
 Deleted
 In Progress
 On Hold
 Completed

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:

Council District(s):
 District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						14,600 75,300 266,100
PROJECT TOTAL	0	0	0	0	356,000	356,000
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				Total
Unfunded UNF						356,000
REVENUE TOTAL	0	0	0	0	356,000	356,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Ironwood Avenue / Sinclair Street Traffic Signal

Department / Division: Public Works Department / Transportation Engineering Division

Project Status:
 New
 Deleted
 In Progress
 On Hold
 Completed

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:

Project Description:
 This project will signalize the intersection of Ironwood Avenue / Sinclair Street. This intersection is included in the City's future traffic signal data base for signalization. Future traffic signals will be constructed at half-mile spacing.

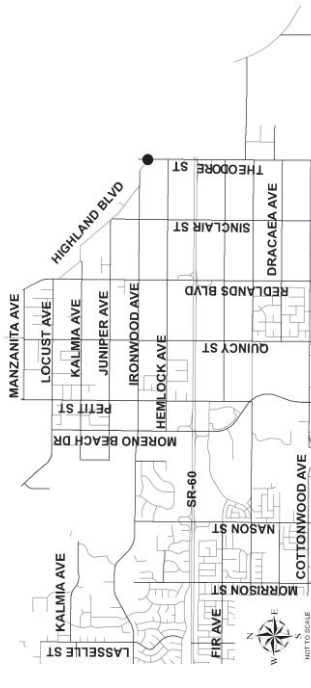
Justification or Significance of Improvement:
 This signal will be conditioned for design and construction either by the developers or by the City as the development occurs within the vicinity of this intersection. The traffic signal will be completed using DIF funds.

Estimated Maintenance Costs:
 Annual average costs associated with traffic signal maintenance are approximately \$3,500 per traffic signal. Although actual maintenance costs may vary, this cost is based on the City's historical maintenance costs for traffic signals. Currently no new source has been identified to fund the maintenance of the new traffic signal(s) in this project.

Council District(s):
 District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						14,600 75,300 266,100
PROJECT TOTAL	0	0	0	0	356,000	356,000
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				Total
Unfunded UNF						356,000
REVENUE TOTAL	0	0	0	0	356,000	356,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Ironwood Avenue / Theodore Street Traffic Signal</p> <p>Department / Division: Public Works Department / Transportation Engineering Division</p>	<p>Project Status:</p> <input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold	<p>Project Priority in CIP Category:</p> <input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)			
<p>Project Description:</p> <p>This project will signalize the intersection of Ironwood Avenue / Theodore Street. This intersection is included in the City's future traffic signal data base for signalization. Future traffic signals will be constructed at half-mile spacing.</p> <p>Justification or Significance of Improvement:</p> <p>This signal will be conditioned for design and construction either by the developers or by the City as the development occurs within the vicinity of this intersection. The traffic signal will be completed using DIF funds.</p> <p>Estimated Maintenance Costs:</p> <p>Annual average costs associated with traffic signal maintenance are approximately \$3,500 per traffic signal. Although actual maintenance costs may vary, this cost is based on the City's historical maintenance costs for traffic signals. Currently no new source has been identified to fund the maintenance of the new traffic signal(s) in this project.</p>					
<p align="center">Council District(s):</p> <input type="checkbox"/> District 1 <input checked="" type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4					
FY 21/22 - FY 22/23 Budget					
New Request FY 2021/2022	New Request FY 2022/2023	New Request FY 2023/2024	New Request FY 2024/2025	New Request FY 2025/2026 and Beyond	Total
0	0	0	0	356,000	356,000
Funding Source					
Unfunded UNF					Total
				356,000	356,000
REVENUE TOTAL				0	356,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: John F. Kennedy Drive / Redlands Boulevard / Cactus Avenue Traffic Signal</p> <p>Department / Division: Public Works Department / Transportation Engineering Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>																																														
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		FY 21/22 - FY 22/23 Budget																																														
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Unfunded UNF						356,000	356,000																																									
REVENUE TOTAL	0	0	0	0	0	356,000	356,000																																									

Project Description:
This project will signalize the intersection of John F. Kennedy Drive / Redlands Boulevard / Cactus Avenue. This intersection is included in the City's future traffic signal data base for signalization. Future traffic signals will be constructed at half-mile spacing.

Justification or Significance of Improvement:
This signal will be conditioned for design and construction either by the developers or by the City as the development occurs within the vicinity of this intersection. The traffic signal will be completed using DIF funds.

Estimated Maintenance Costs:
Annual average costs associated with traffic signal maintenance are approximately \$3,500 per traffic signal. Although actual maintenance costs may vary, this cost is based on the City's historical maintenance costs for traffic signals. Currently no new source has been identified to fund the maintenance of the new traffic signal(s) in this project.

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Kitching Street / Bay Avenue Traffic Signal</p> <p>Department / Division: Public Works Department / Transportation Engineering Division</p>	<p>Project Status:</p> <p><input type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input checked="" type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>																																										
<p>Project Location Map:</p>																																												
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	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total																																						
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Unfunded UNF					461,700	461,700																																						
REVENUE TOTAL	0	0	0	0	461,700	461,700																																						

Project Description:
This project would convert the existing all-way stop control to traffic signal control and remove the cross gutter across the west leg.

Justification or Significance of Improvement:
Installation of this traffic signal would remove an existing all-way stop.

Estimated Maintenance Costs:
Annual average costs associated with traffic signal maintenance are approximately \$3,500 per traffic signal. Although actual maintenance costs may vary, this cost is based on the City's historical maintenance costs for traffic signals. Currently no new source has been identified to fund the maintenance of the new traffic signal(s) in this project.

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Kitching Street / Globe Street Traffic Signal

Department / Division: Public Works Department / Transportation Engineering Division

Project Status:
 New
 Deleted
 In Progress
 On Hold
 Completed

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:


Justification or Significance of Improvement:
 This signal will be conditioned for design and construction either by the developers or by the City as the development occurs within the vicinity of this intersection. The traffic signal will be completed using DIF funds.

Estimated Maintenance Costs:
 Annual average costs associated with traffic signal maintenance are approximately \$3,500 per traffic signal. Although actual maintenance costs may vary, this cost is based on the City's historical maintenance costs for traffic signals. Currently no new source has been identified to fund the maintenance of the new traffic signal(s) in this project.

Council District(s):
 District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						14,600 75,300 266,100 356,000
PROJECT TOTAL	0	0	0	0	0	356,000
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				Total
Unfunded UNF						356,000
REVENUE TOTAL	0	0	0	0	0	356,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Krameria Avenue / Indian Street Traffic Signal</p> <p>Department / Division: Public Works Department / Transportation Engineering Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>																														
<p>Project Location Map:</p> 																																
<p>Project Description: This project will signalize the intersection of Krameria Avenue / Indian Street. This intersection is included in the City's future traffic signal data base for signalization. Future traffic signals will be constructed at half-mile spacing.</p> <p>Justification or Significance of Improvement: This signal will be conditioned for design and construction either by the developers or by the City as the development occurs within the vicinity of this intersection. The traffic signal will be completed using DIF funds.</p> <p>Estimated Maintenance Costs: Annual average costs associated with traffic signal maintenance are approximately \$3,500 per traffic signal. Although actual maintenance costs may vary, this cost is based on the City's historical maintenance costs for traffic signals. Currently no new source has been identified to fund the maintenance of the new traffic signal(s) in this project.</p>																																
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		FY 21/22 - FY 22/23 Budget																														
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PROJECT TOTAL	0	0	0	0	0	356,000	356,000																									
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FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total																									
Unfunded UNF						356,000	356,000																									
REVENUE TOTAL	0	0	0	0	0	356,000	356,000																									

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Lasselle Street / Alessandro Boulevard Traffic Signal

Department / Division: Public Works Department / Transportation Engineering Division

Project Status:
 New
 Deleted
 In Progress
 On Hold
 Completed

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Description:

This project will relocate existing traffic signal equipment that is not at its ultimate location. The work would be undertaken at the same time that road widening occurs.

Justification or Significance of Improvement:

Modification of signalized intersections to place equipment at its ultimate location is a key component of completing the City's road infrastructure.

Estimated Maintenance Costs:

Annual average costs associated with traffic signal maintenance are approximately \$3,500 per traffic signal. Although actual maintenance costs may vary, this cost is based on the City's historical maintenance costs for traffic signals. Currently no new source has been identified to fund the maintenance of the new traffic signal(s) in this project.

Project Location Map:



Council District(s):

District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						60,800 121,500 182,300
PROJECT TOTAL	0	0	0	0	0	182,300
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				Total
Unfunded UNF						182,300
REVENUE TOTAL	0	0	0	0	0	182,300

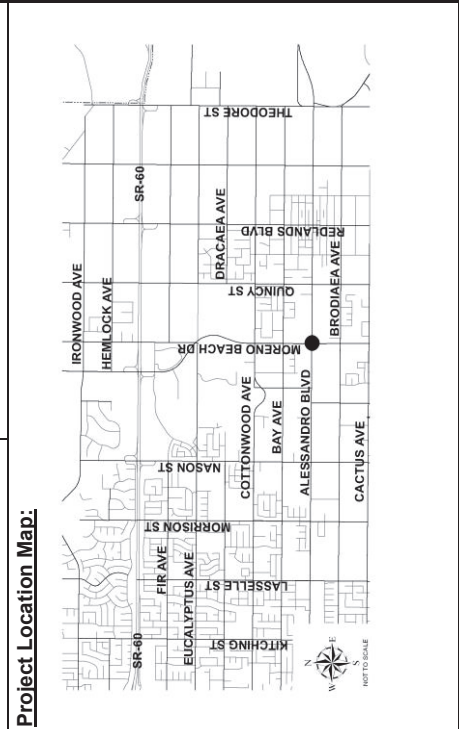
CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Moreno Beach Drive / Alessandro Boulevard Traffic Signal

Department / Division: Public Works Department / Transportation Engineering Division

Project Status:
 New
 Deleted
 In Progress
 On Hold
 Completed

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)



Project Description:
 This project will relocate existing traffic signal equipment that is not at its ultimate location. The work would be undertaken at the same time that road widening occurs.

Justification or Significance of Improvement:
 Modification of signalized intersections to place equipment at its ultimate location is a key component of completing the City's road infrastructure.

Estimated Maintenance Costs:
 Annual average costs associated with traffic signal maintenance are approximately \$3,500 per traffic signal. Although actual maintenance costs may vary, this cost is based on the City's historical maintenance costs for traffic signals. Currently no new source has been identified to fund the maintenance of the new traffic signal(s) in this project.

Council District(s):
 District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						60,800 243,000 243,000
PROJECT TOTAL	0	0	0	0	0	303,800
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				Total
Unfunded UNF						303,800
REVENUE TOTAL	0	0	0	0	0	303,800

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Moreno Beach Drive / Championship Drive Traffic Signal

Department / Division: Public Works Department / Transportation Engineering Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:

Project Description:
 This project will signalize the intersection of Moreno Beach Drive / Championship Drive. This intersection is included in the City's future traffic signal data base for signalization. Future traffic signals will be constructed at half-mile spacing.

Justification or Significance of Improvement:
 This signal will be conditioned for design and construction either by the developers or by the City as the development occurs within the vicinity of this intersection. The traffic signal will be completed using DIF funds.

Estimated Maintenance Costs:
 Annual average costs associated with traffic signal maintenance are approximately \$3,500 per traffic signal. Although actual maintenance costs may vary, this cost is based on the City's historical maintenance costs for traffic signals. Currently no new source has been identified to fund the maintenance of the new traffic signal(s) in this project.

Council District(s):
 District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						14,600 75,300 266,100
PROJECT TOTAL	0	0	0	0	356,000	356,000
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				Total
Unfunded UNF						356,000
REVENUE TOTAL	0	0	0	0	356,000	356,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Moreno Beach Drive / Cottonwood Avenue Traffic Signal

Department / Division: Public Works Department / Transportation Engineering Division

Project Status:
 New
 Deleted
 In Progress
 On Hold
 Completed

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Description:

This project will relocate existing traffic signal equipment that is not at its ultimate location. The work would be undertaken at the same time that road widening occurs.

Justification or Significance of Improvement:

Modification of signalized intersections to place equipment at its ultimate location is a key component of completing the City's road infrastructure.

Estimated Maintenance Costs:

Annual average costs associated with traffic signal maintenance are approximately \$3,500 per traffic signal. Although actual maintenance costs may vary, this cost is based on the City's historical maintenance costs for traffic signals. Currently no new source has been identified to fund the maintenance of the new traffic signal(s) in this project.

Project Location Map:



Council District(s):

District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total	
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond		
Prelim. Eng. / Environ. Design Right of Way Construction Other						60,800 182,300 182,300	
PROJECT TOTAL	0	0	0	0	243,100	243,100	
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				FY 2025/2026 and Beyond	Total
Unfunded UNF						243,100	243,100
REVENUE TOTAL	0	0	0	0	243,100	243,100	

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Moreno Beach Drive / Ironwood Avenue Traffic Signal

Department / Division: Public Works Department / Transportation Engineering Division

Project Status:
 New
 Deleted
 In Progress
 On Hold
 Completed

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:

This project will relocate existing traffic signal equipment that is not at its ultimate location. The work would be undertaken at the same time that road widening occurs.

Justification or Significance of Improvement:

Modification of signalized intersections to place equipment at its ultimate location is a key component of completing the City's road infrastructure.

Estimated Maintenance Costs:

Annual average costs associated with traffic signal maintenance are approximately \$3,500 per traffic signal. Although actual maintenance costs may vary, this cost is based on the City's historical maintenance costs for traffic signals. Currently no new source has been identified to fund the maintenance of the new traffic signal(s) in this project.



Council District(s):

District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						60,800 243,000 303,800
PROJECT TOTAL	0	0	0	0	0	303,800
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024 FY 2024/2025 and Beyond				Total
Unfunded UNF						303,800 303,800
REVENUE TOTAL	0	0	0	0	0	303,800

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Moreno Beach Drive / Locust Avenue Traffic Signal

Department / Division: Public Works Department / Transportation Engineering Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Description:

This project will signalize the intersection of Locust Avenue / Moreno Beach Drive. This intersection is included in the City's future traffic signal data base for signalization. Future traffic signals will be constructed at half-mile spacing.

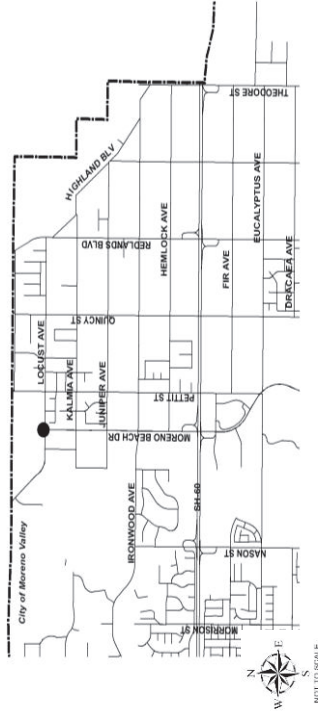
Justification or Significance of Improvement:

This signal will be conditioned for design and construction either by the developers or by the City as the development occurs within the vicinity of this intersection. The traffic signal will be completed using DIF funds.

Estimated Maintenance Costs:

Annual average costs associated with traffic signal maintenance are approximately \$3,500 per traffic signal. Although actual maintenance costs may vary, this cost is based on the City's historical maintenance costs for traffic signals. Currently no new source has been identified to fund the maintenance of the new traffic signal(s) in this project.

Project Location Map:



Council District(s):

District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						14,600 75,300 266,100 356,000
PROJECT TOTAL	0	0	0	0	0	356,000
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				Total
Unfunded UNF						356,000
REVENUE TOTAL	0	0	0	0	0	356,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Nason Street / Clubhouse Drive Traffic Signal

Department / Division: Public Works Department / Transportation Engineering Division

Project Status:
 New
 Deleted
 In Progress
 On Hold
 Completed

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Description:

This project will signalize the intersection of Nason Street / Clubhouse Drive. This intersection is included in the City's future traffic signal data base for signalization. Future traffic signals will be constructed at half-mile spacing.

Justification or Significance of Improvement:

This signal will be conditioned for design and construction either by the developers or by the City as the development occurs within the vicinity of this intersection. The traffic signal will be completed using DIF funds.

Estimated Maintenance Costs:

Annual average costs associated with traffic signal maintenance are approximately \$3,500 per traffic signal. Although actual maintenance costs may vary, this cost is based on the City's historical maintenance costs for traffic signals. Currently no new source has been identified to fund the maintenance of the new traffic signal(s) in this project.

Project Location Map:



Council District(s):

District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						14,600 75,300 266,100
PROJECT TOTAL	0	0	0	0	356,000	356,000
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				Total
Unfunded UNF						356,000
REVENUE TOTAL	0	0	0	0	356,000	356,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Nason Street / Ironwood Avenue Traffic Signal

Department / Division: Public Works Department / Transportation Engineering Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:

Council District(s):
 District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						60,800
PROJECT TOTAL	0	0	0	0	0	182,300
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				Total
Unfunded UNF						243,100
REVENUE TOTAL	0	0	0	0	0	243,100

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Oliver Street / John F. Kennedy Drive Traffic Signal

Department / Division: Public Works Department / Transportation Engineering Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:

Project Description:
This project will signalize the Oliver Street and John F. Kennedy Drive intersection.

Justification or Significance of Improvement:
This project will signalize the Oliver Street and John F. Kennedy Drive intersection.

Estimated Maintenance Costs:
Annual average costs associated with traffic signal maintenance are approximately \$3,500 per traffic signal. Although actual maintenance costs may vary, this cost is based on the City's historical maintenance costs for traffic signals. Currently no new source has been identified to fund the maintenance of the new traffic signal(s) in this project.

Council District(s):
 District 1
 District 2
 District 3
 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						14,600 75,300 266,100 356,000
PROJECT TOTAL	0	0	0	0	0	356,000
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				Total
Unfunded UNF						356,000
REVENUE TOTAL	0	0	0	0	0	356,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Perris Boulevard / Dracaea Avenue Traffic Signal

Department / Division: Public Works Department / Transportation Engineering Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Description:

This project will relocate existing traffic signal equipment that is not at its ultimate location. The work would be undertaken at the same time that road widening occurs.

Justification or Significance of Improvement:

Modification of signalized intersections to place equipment at its ultimate location is a key component of completing the City's road infrastructure.

Estimated Maintenance Costs:

Annual average costs associated with traffic signal maintenance are approximately \$3,500 per traffic signal. Although actual maintenance costs may vary, this cost is based on the City's historical maintenance costs for traffic signals. Currently no new source has been identified to fund the maintenance of the new traffic signal(s) in this project.

Project Location Map:



Council District(s):

District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total	
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond		
Prelim. Eng. / Environ. Design Right of Way Construction Other						30,400	
PROJECT TOTAL	0	0	0	0	121,600	121,600	
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				FY 2025/2026 and Beyond	Total
Unfunded UNF						121,600	121,600
REVENUE TOTAL	0	0	0	0	121,600	121,600	

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Perris Boulevard / Eucalyptus Avenue Traffic Signal

Department / Division: Public Works Department / Transportation Engineering Division

Project Status:
 New
 Deleted
 In Progress
 On Hold
 Completed

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Description:

This project will relocate existing traffic signal equipment that is not at its ultimate location. The work would be undertaken at the same time that road widening occurs.

Justification or Significance of Improvement:

Modification of signalized intersections to place equipment at its ultimate location is a key component of completing the City's road infrastructure.

Estimated Maintenance Costs:

Annual average costs associated with traffic signal maintenance are approximately \$3,500 per traffic signal. Although actual maintenance costs may vary, this cost is based on the City's historical maintenance costs for traffic signals. Currently no new source has been identified to fund the maintenance of the new traffic signal(s) in this project.

Project Location Map:



Council District(s):

District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total	
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond		
Prelim. Eng. / Environ. Design Right of Way Construction Other						30,400	
PROJECT TOTAL	0	0	0	0	0	121,600	
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				FY 2025/2026 and Beyond	Total
Unfunded UNF							121,600
REVENUE TOTAL	0	0	0	0	0	121,600	121,600

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Perris Boulevard / Santiago Drive Traffic Signal

Department / Division: Public Works Department / Transportation Engineering Division

Project Status:
 New
 Deleted
 In Progress
 On Hold
 Completed

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:

Project Description:
 This project will signalize the intersection of Perris Boulevard / Santiago Drive. This intersection is included in the City's future traffic signal data base for signalization. Future traffic signals will be constructed at half-mile spacing.

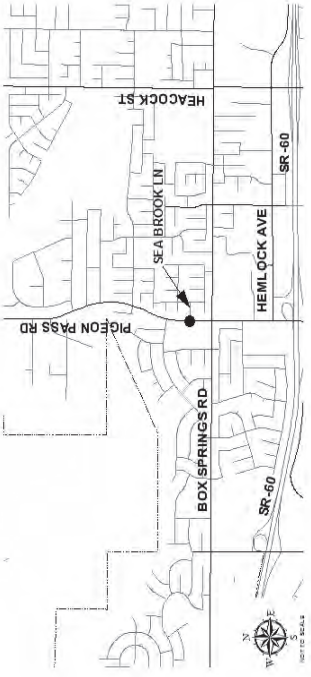
Justification or Significance of Improvement:
 This signal will be conditioned for design and construction either by the developers or by the City as the development occurs within the vicinity of this intersection. The traffic signal will be completed using DIF funds.

Estimated Maintenance Costs:
 Annual average costs associated with traffic signal maintenance are approximately \$3,500 per traffic signal. Although actual maintenance costs may vary, this cost is based on the City's historical maintenance costs for traffic signals. Currently no new source has been identified to fund the maintenance of the new traffic signal(s) in this project.

Council District(s):
 District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						14,600 75,300 266,100
PROJECT TOTAL	0	0	0	0	356,000	356,000
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				Total
Unfunded UNF						356,000
REVENUE TOTAL	0	0	0	0	356,000	356,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Pigeon Pass Road / Seabrook Lane Traffic Signal</p> <p>Department / Division: Public Works Department / Transportation Engineering Division</p>	<p>Project Status:</p> <p><input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input checked="" type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>
<p>Project Description: This project will signalize the intersection of Pigeon Pass Road and Seabrook Lane including the supermarket driveway on the fourth leg.</p> <p>Justification or Significance of Improvement: This intersection satisfies several warrants for signalization. Schedule: Based on funding availability.</p> <p>Estimated Maintenance Costs: Annual average costs associated with traffic signal maintenance are approximately \$3,500 per traffic signal. Although actual maintenance costs may vary, this cost is based on the City's historical maintenance costs for traffic signals. Currently no new source has been identified to fund the maintenance of the new traffic signal(s) in this project.</p>		
<p>Project Location Map:</p> 		
<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input checked="" type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>		

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total	
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond		
Prelim. Eng. / Environ. Design Right of Way Construction Other				6,100 24,300 303,800 334,200		6,100 24,300 303,800 334,200	
PROJECT TOTAL	0	0	0	0	0	334,200	
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				FY 2025/2026 and Beyond	Total
Unfunded UNF				334,200		334,200	334,200
REVENUE TOTAL	0	0	0	334,200	0	0	334,200

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Redlands Boulevard / Ironwood Avenue Traffic Signal

Department / Division: Public Works Department / Transportation Engineering Division

Project Status:
 New
 Deleted
 In Progress
 On Hold
 Completed

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:



Project Description:
 This project will relocate existing traffic signal equipment that is not at its ultimate location. The work would be undertaken at the same time that road widening occurs.

Justification or Significance of Improvement:

Modification of signalized intersections to place equipment at its ultimate location is a key component of completing the City's road infrastructure.

Estimated Maintenance Costs:

Annual average costs associated with traffic signal maintenance are approximately \$3,500 per traffic signal. Although actual maintenance costs may vary, this cost is based on the City's historical maintenance costs for traffic signals. Currently no new source has been identified to fund the maintenance of the new traffic signal(s) in this project.

Council District(s):

District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total	
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond		
Prelim. Eng. / Environ. Design Right of Way Construction Other						60,800	
PROJECT TOTAL	0	0	0	0	0	243,000	
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				FY 2025/2026 and Beyond	Total
Unfunded UNF						303,800	
REVENUE TOTAL	0	0	0	0	0	303,800	

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Sunnymead Boulevard / Indian Street Traffic Signal

Department / Division: Public Works Department / Transportation Engineering Division

Project Status:
 New
 In Progress
 Completed

Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Description:

This project will relocate existing traffic signal equipment that is not at its ultimate location. The work would be undertaken at the same time that road widening occurs.

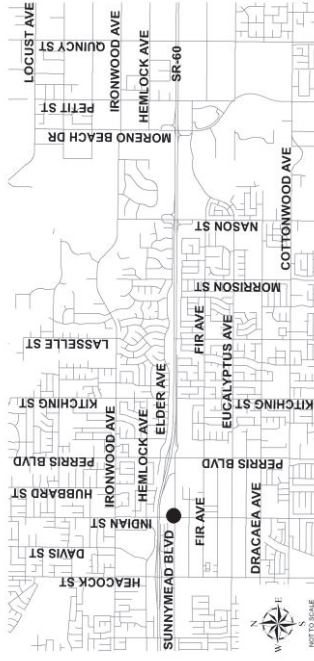
Justification or Significance of Improvement:

Modification of signalized intersections to place equipment at its ultimate location is a key component of completing the City's road infrastructure.

Estimated Maintenance Costs:

Annual average costs associated with traffic signal maintenance are approximately \$3,500 per traffic signal. Although actual maintenance costs may vary, this cost is based on the City's historical maintenance costs for traffic signals. Currently no new source has been identified to fund the maintenance of the new traffic signal(s) in this project.

Project Location Map:



Council District(s):

District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						60,800 121,500 182,300
PROJECT TOTAL	0	0	0	0	0	182,300
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				Total
Unfunded UNF						182,300
REVENUE TOTAL	0	0	0	0	0	182,300

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Sunnymead Boulevard / Kitching Street Traffic Signal

Department / Division: Public Works Department / Transportation Engineering Division

Project Status:
 New
 In Progress
 Completed

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Description:

This project will signalize the intersection of Sunnymead Boulevard / Kitching Street. This intersection is included in the City's future traffic signal data base for signalization. Future traffic signals will be constructed at half-mile spacing.

Justification or Significance of Improvement:

This signal will be conditioned for design and construction either by the developers or by the City as the development occurs within the vicinity of this intersection. The traffic signal will be completed using DIF funds.

Estimated Maintenance Costs:

Annual average costs associated with traffic signal maintenance are approximately \$3,500 per traffic signal. Although actual maintenance costs may vary, this cost is based on the City's historical maintenance costs for traffic signals. Currently no new source has been identified to fund the maintenance of the new traffic signal(s) in this project.

Project Location Map:



Council District(s):

District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						14,600 75,300 266,100
PROJECT TOTAL	0	0	0	0	356,000	356,000
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				Total
Unfunded UNF						356,000
REVENUE TOTAL	0	0	0	0	356,000	356,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Sunnymead Ranch Parkway / Pigeon Pass Road Traffic Signal

Department / Division: Public Works Department / Transportation Engineering Division

Project Status:
 New
 Deleted
 In Progress
 On Hold
 Completed

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:

Justification or Significance of Improvement:
 This signal will signalize the intersection of Sunnymead Ranch Parkway / Pigeon Pass Road. This intersection is included in the City's future traffic signal data base for signalization. Future traffic signals will be constructed at half-mile spacing.

Estimated Maintenance Costs:
 Annual average costs associated with traffic signal maintenance are approximately \$3,500 per traffic signal. Although actual maintenance costs may vary, this cost is based on the City's historical maintenance costs for traffic signals. Currently no new source has been identified to fund the maintenance of the new traffic signal(s) in this project.

Council District(s):
 District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						14,600 75,300 266,100 356,000
PROJECT TOTAL	0	0	0	0	0	356,000
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024				Total
Unfunded UNF						356,000
REVENUE TOTAL	0	0	0	0	0	356,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Valley Springs Parkway / Eucalyptus Avenue Traffic Signal

Department / Division: Public Works Department / Transportation Engineering Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Description:

This project will relocate existing traffic signal equipment that is not at its ultimate location. The work would be undertaken at the same time that road widening occurs.

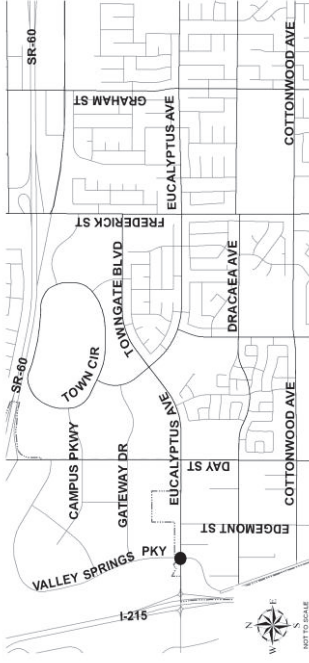
Justification or Significance of Improvement:

Modification of signalized intersections to place equipment at its ultimate location is a key component of completing the City's road infrastructure.

Estimated Maintenance Costs:

Annual average costs associated with traffic signal maintenance are approximately \$3,500 per traffic signal. Although actual maintenance costs may vary, this cost is based on the City's historical maintenance costs for traffic signals. Currently no new source has been identified to fund the maintenance of the new traffic signal(s) in this project.

Project Location Map:

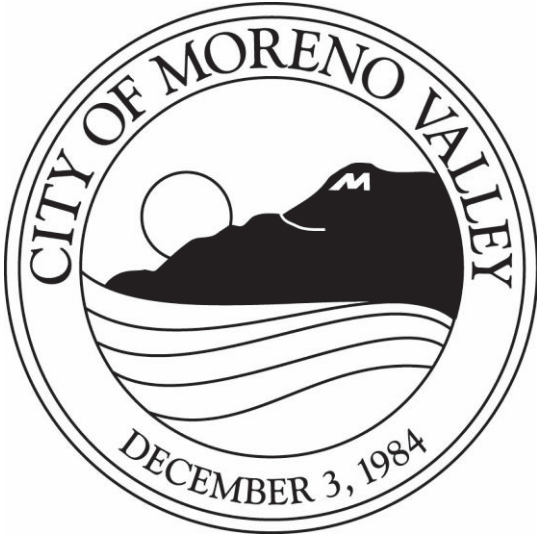


Council District(s):

District 1 District 2 District 3 District 4

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget					Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other							30,400
PROJECT TOTAL	0	0	0	0	0	121,600	121,600
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024					Total
Unfunded UNF							121,600
REVENUE TOTAL	0	0	0	0	0	121,600	121,600

CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond



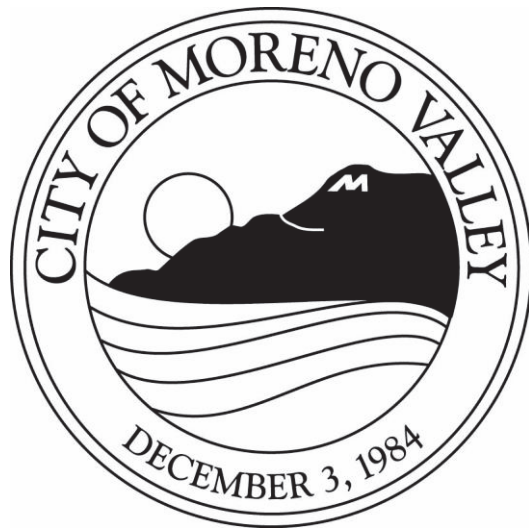
Attachment: Exhibit A - Proposed CIP FYs 2021/22 - 2022/23 (4417 : Capital Improvement Plan Fiscal Years 2021/22 - 2022/23)

CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond

<u>Project Name</u>	<u>Page #</u>
<i>Underground Utilities</i>	
<i>Unfunded Projects</i>	
Underground In-Lieu Fees Project	U-7

Attachment: Exhibit A - Proposed CIP FYs 2021/22 - 2022/23 (4417 : Capital Improvement Plan Fiscal Years 2021/22 - 2022/23)

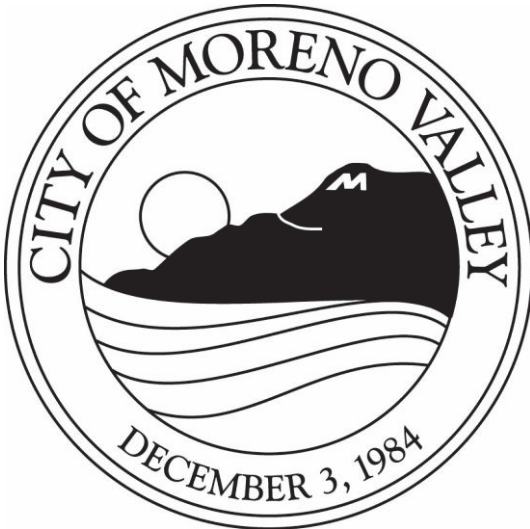
CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond



CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Underground In-Lieu Fees Project		Project Status: <input checked="" type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Deleted <input type="checkbox"/> Completed <input type="checkbox"/> On Hold		Project Priority in CIP Category: <input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)		
Department / Division: Public Works Department / Land Development Division		Project Location Map:				
Project Description: The underground utility in-lieu fees are collected to help underground overhead utilities. Streets with overhead utilities are prioritized by the Capital Projects Division. Overhead utilities are undergrounded based on the assigned street priority.		CITYWIDE				
Justification or Significance of Improvement: As there is no way to predict when and where development will occur, it is uncertain when the undergrounding of overhead utilities will occur. Overhead utilities on prioritized streets will be undergrounded as sufficient underground in-lieu of construction fees are collected.		Council District(s): <input checked="" type="checkbox"/> District 1 <input checked="" type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4				
Estimated Maintenance Costs:						
PROJECT PHASE	Budget FY 2020/2021	FY 2021/2022 - FY 22/23 Budget	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other						
PROJECT TOTAL	0	0	0	0	1,128,600	1,128,600
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond
Unfunded 4010.UNF						
REVENUE TOTAL	0	0	0	0	0	1,128,600

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond



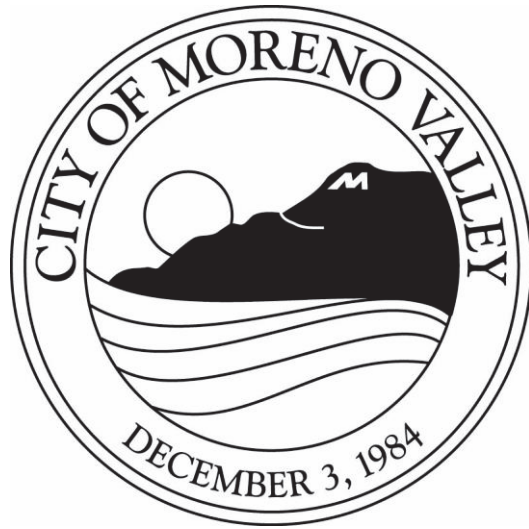
Attachment: Exhibit A - Proposed CIP FYs 2021/22 - 2022/23 (4417 : Capital Improvement Plan Fiscal Years 2021/22 - 2022/23)

CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond

<u>Project Name</u>	<u>Page #</u>
<i>Other</i>	
<i>Unfunded Projects</i>	
None Listed	

Attachment: Exhibit A - Proposed CIP FYs 2021/22 - 2022/23 (4417 : Capital Improvement Plan Fiscal Years 2021/22 - 2022/23)

CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond



Attachment: Exhibit A - Proposed CIP FYs 2021/22 - 2022/23 (4417 : Capital Improvement Plan Fiscal Years 2021/22 - 2022/23)

b



COMPLETED

PROPOSED
CAPITAL IMPROVEMENT PLAN

fiscal years 2021/22 & 2022/23

Attachment: Exhibit A - Proposed CIP FYs 2021/22 - 2022/23 (4417 : Capital Improvement Plan Fiscal Years 2021/22 - 2022/23)

Packet Pg. 453



<u>Project Name</u>	<u>Page #</u>
<i>Streets and Highways</i>	
<i>Completed Projects</i>	
Citywide Pavement Rehabilitation Program FY 18/19	S-3C
Citywide Pavement Rehabilitation Program FY 19/20	S-4C
Cycle 1 ATP Citywide SRTS Pedestrian Facility Improvements	S-6C
Cycle 7 ADA Pedestrian Access Ramps	S-7C
Liberty Lane Improvements	S-11C
Pavement Rehabilitation for Various Streets (CDBG FY 18/19)	S-12C
Pavement Rehabilitation for Various Streets (CDBG FY 19/20)	S-13C
<i>Buildings</i>	
<i>Completed Projects</i>	
ADA Improvements at City Facilities	B-3C
Civic Center Amphitheater and Park	B-4C
Main Library ADA Improvements	B-8C
Satellite Library	B-9C
Replace Flooring at Various Community Services Facilities	B-15C
<i>Drainage</i>	
<i>Completed Projects</i>	
Heacock Street Channel Improvements	D-3C
Moreno - Alessandro Interim Facility (Discovery Church)	D-4C
<i>Electric Utility</i>	
<i>Completed Projects</i>	
Alessandro Crosstown Tie	E-3C
Bay Avenue Line Extension	E-4C
City Hall Annex Solar Carports	E-5C
Day Street Line Extension	E-6C
Heacock Crosstown Tie	E-9C
Indian Interconnect Line Extension	E-10C
Mobile Advanced Metering Infrastructure (AMI) System	E-11C
MVU Streetlight LED Retrofit	E-13C

<u>Project Name</u>	<u>Page #</u>
Parks	
Completed Projects	
Calsense Irrigation Controller Upgrades	P-3C
Celebration Park Splash Pad UV Purification System	P-4C
Civic Center Electrical Upgrades	P-5C
Cottonwood Recreation Center Exterior Landscaping	P-7C
Moreno Valley Community Park Skate Park (Construction)	P-11C
Moreno Valley Community Park Skate Park (Design)	P-12C

Traffic Signals	
Completed Projects	
Alessandro Boulevard / Grant Street Traffic Signal	T-4C
Dynamic Traveler Alert Message Boards	T-5C
Guardrail Upgrades	T-6C
ITS Deployment Phase 1B	T-7C
Systemic Safety Analysis Report Program	T-13C
Pedestrian Hybrid Beacon on Cactus Avenue at Woodland Park	T-15C

Other	
Completed Projects	
Dracaea Avenue Neighborhood Greenway Corridor Study	O-4C

Completed Mid-Year FY 19/21 Projects*

Completed Projects	Life-to-Date Expenditures Through FY 2019/2020	Budget FY 2020/2021
Infill Fire Station Land Acquisition	\$ -	\$ 435,000.00
Public Safety Building Back Parking Lot Improvements	\$ 64,888.00	\$ 51,668.00
Electrical Switch 61 Reconfiguration	\$ -	\$ 225,000.00

*These projects started after the adoption of the FY 19/21 CIP and completed before the adoption of the 21/23 CIP.

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Citywide Pavement Rehabilitation Program FY 18/19

Department / Division: Public Works Department / Capital Projects Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:

Project Description:
 This project provided pavement rehabilitation and preservation for approximately 10 arterial street segments citywide. The project included funding from with Gas Tax Revenues (SB1).

Design: January 2019 to March 2019
 Advertise / Award: April 2019 to June 2019
 Construction: Completed May 2020

Justification or Significance of Improvement:

The project utilized different cost effective treatments available to rehab the existing street pavement. The project helped to extend the services life of the roadway.

Estimated Maintenance Costs:

Street maintenance is typically funded by Gas Tax and Measure A funds, and costs on average are approximately \$1.40 / square foot for grind and overlay and \$0.30 / square foot for slurry seal. Street maintenance costs over a 20 year period are estimated to average almost \$12,000 per 13 foot wide lane mile per year. Street maintenance funding will be part of the deferred maintenance for the whole network.

CITYWIDE

Council District(s):

District 1
 District 2
 District 3
 District 4

Life-to-Date Expenditures Through FY 2019/2020: 4,557,805

PROJECT PHASE	Budget FY 2020/2021	FY 21/22 - FY 22/23 Budget				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design						
Right of Way Construction	8,274					
Other						
PROJECT TOTAL	8,274	0	0	0	0	0
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	Total
Gas Tax (2000A)						
801 0081-2000A	8,274					
REVENUE TOTAL	8,274	0	0	0	0	0

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Citywide Pavement Rehabilitation Program FY 19/20		Project Status: <input type="checkbox"/> New <input type="checkbox"/> In Progress <input checked="" type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold		Project Priority in CIP Category: <input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)			
Department / Division: Public Works Department / Capital Projects Division		Project Location Map: CITYWIDE					
Project Description: This project provided pavement rehabilitation for approximately 22 street segments citywide. The project was funded with Gas Tax Revenues (SB1). Design: July 2019 to March 2020 Advertise / Award: April 2020 to June 2020 Construction: Completed February 2021 Justification or Significance of Improvement: The project utilized different cost effective treatments available to rehab the existing street pavement. The project helped to extend the services life of the roadway. Estimated Maintenance Costs: Street maintenance is typically funded by Gas Tax and Measure A funds, and costs on average are approximately \$1.40 / square foot for grind and overlay and \$0.30 / square foot for slurry seal. Street maintenance costs over a 20 year period are estimated to average almost \$12,000 per 13 foot wide lane mile per year. Street maintenance funding will be part of the deferred maintenance for the whole network.		Council District(s): <input checked="" type="checkbox"/> District 1 <input checked="" type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4					
Life-to-Date Expenditures Through FY 2019/2020: 123,903							
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other	4,726,231	0	0	0	0	0	0
PROJECT TOTAL	4,726,231	0	0	0	0	0	0
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Gas Tax (2000A) 801 0085-2000A CDBG (2512) 801 0085-2512 Cap Proj Reim (3008) 801 0085-3008	3,646,359 190,000 889,872						
REVENUE TOTAL	4,726,231	0	0	0	0	0	0

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Cycle 1 ATP Citywide SRTS Pedestrian Facility Improvements</p>		<p>Project Status:</p> <p><input type="checkbox"/> New <input type="checkbox"/> Deleted</p> <p><input type="checkbox"/> In Progress <input type="checkbox"/> On Hold</p> <p><input checked="" type="checkbox"/> Completed</p>		<p>Project Priority in CIP Category:</p> <p><input checked="" type="checkbox"/> Essential (Start within 1 yr)</p> <p><input type="checkbox"/> Necessary (Start within 1 to 3 yrs)</p> <p><input type="checkbox"/> Desirable (Start within 3 to 5 yrs)</p> <p><input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>			
<p>Department / Division: Public Works Department / Capital Projects Division</p>		<p>Project Location Map:</p>					
<p>Project Description:</p> <p>This project installed missing sidewalks, curbs, gutters, pedestrian access ramps, drainage facilities, street lights, traffic signal pole relocation, radar speed feedback signs, and pavement widening near school sites on Dracaea Avenue, Eucalyptus Avenue, Ironwood Avenue, Sandy Glade Avenue, and Elsworth Street.</p> <p>The project included non-infrastructure work items including walking and bicycling safety skill classes and safety promotional materials to be taught and distributed at the schools near project sites. Construction was completed in February 2019. Non-Infrastructure work was completed in December 2020.</p> <p>Justification or Significance of Improvement: Sidewalks are an important component of a walking route to school. Missing portions of curbs, gutters, and sidewalks are a concern for students, parents, school, and the City. The situation deteriorates during the rainy season. Because of wet and muddy dirt paths, parents and students walked in the roadway next to motor vehicles. This undesirable condition, in addition to the lack of Americans with Disabilities Act (ADA) compliant pedestrian access ramps and street lights, discouraged many parents and students from walking to school.</p> <p>Estimated Maintenance Costs: Sidewalk maintenance costs over a 50 year period are estimated to average approximately \$5,400 per 6 foot wide sidewalk mile per year. Street maintenance is typically funded by Gas Tax and Measure A funds, and costs on average are approximately \$1.40 / square foot for grind and overlay and \$0.30 / square foot for slurry seal. Street maintenance costs over a 20 year period are estimated to average almost \$12,000 per 13 foot wide lane mile per year. Street maintenance funding will be part of the deferred maintenance for the whole network.</p>							
<p>Life-to-Date Expenditures Through FY 2019/2020: 1,599,038</p>		<p>Council District(s):</p> <p><input checked="" type="checkbox"/> District 1 <input checked="" type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>					
		<p>FY 21/22 - FY 22/23 Budget</p>					
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design							
Right of Way Construction	118,768						
Other							
PROJECT TOTAL	118,768	0	0	0	0	0	0
		<p>Funding Source</p>					
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Cap Proj Grants (2301)							
801 0063-2301	118,768						
REVENUE TOTAL	118,768	0	0	0	0	0	0

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Cycle 7 ADA Pedestrian Access Ramps		Project Status: <input type="checkbox"/> New <input type="checkbox"/> In Progress <input checked="" type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold		Project Priority in CIP Category: <input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)			
Department / Division: Public Works Department / Capital Projects Division		Project Location Map:					
Project Description: This project reconstructed a number of pedestrian access ramps citywide to meet current Americans with Disabilities Act (ADA) requirements. Design: July 2017 to December 2018 Advertise/Award: January 2019 to March 2019 Construction: Completed November 2019 Justification or Significance of Improvement: The reconstruction of access ramps citywide was consistent with the City's approved ADA Transition Plan for public right of way access. Estimated Maintenance Costs: Sidewalk maintenance costs over a 50 year period are estimated to average approximately \$5,400 per 6 foot wide sidewalk mile per year.		CITYWIDE					
		Council District(s): <input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4					
Life-to-Date Expenditures Through FY 2019/2020: 630,129							
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other	0						
PROJECT TOTAL	0	0	0	0	0	0	0
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
REVENUE TOTAL	0	0	0	0	0	0	0

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Liberty Lane Improvements</p> <p>Department / Division: Public Works Department / Capital Projects Division</p>	<p>Project Status:</p> <p><input type="checkbox"/> New <input type="checkbox"/> Deleted</p> <p><input type="checkbox"/> In Progress <input type="checkbox"/> On Hold</p> <p><input checked="" type="checkbox"/> Completed</p>	<p>Project Priority in CIP Category:</p> <p><input checked="" type="checkbox"/> Essential (Start within 1 yr)</p> <p><input type="checkbox"/> Necessary (Start within 1 to 3 yrs)</p> <p><input type="checkbox"/> Desirable (Start within 3 to 5 yrs)</p> <p><input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>
<p>Project Description: This project installed sidewalk on the west side of Liberty Lane from Atwood Avenue to 240 feet north where sidewalk did not currently exist.</p> <p>Design: Completed Advertise/Award: Completed Construction: Completed November 2019</p> <p>Justification or Significance of Improvement: The project was within the CDBG target area and eligible to receive CDBG funding. The project enhanced safety for pedestrians by providing standard sidewalk.</p> <p>Estimated Maintenance Costs: Sidewalk maintenance costs over a 50 year period are estimated to average approximately \$5,400 per 6 foot wide sidewalk mile per year.</p>		
<p>Project Location Map:</p>		
<p>Council District(s):</p> <p><input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>		

PROJECT PHASE	Life-to-Date Expenditures Through FY 2019/2020: 31,192		FY 21/22 - FY 22/23 Budget				
	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other	0	0	0	0	0	0	0
PROJECT TOTAL	0	0	0	0	0	0	0
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
	0	0	0	0	0	0	0
REVENUE TOTAL	0	0	0	0	0	0	0

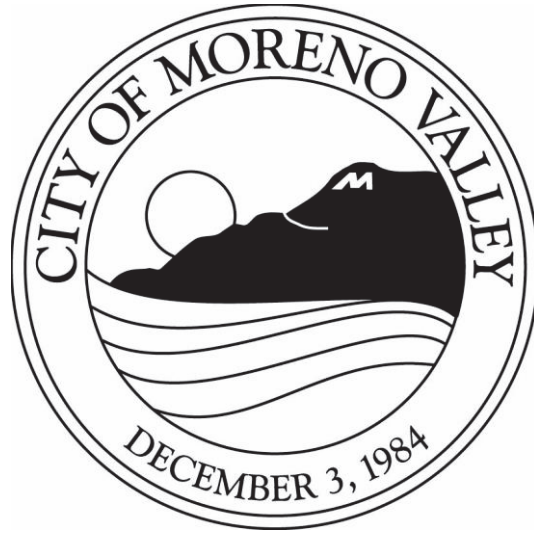
CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Pavement Rehabilitation for Various Streets (CDBG FY 18/19)</p> <p>Department / Division: Public Works Department / Capital Projects Division</p>	<p>Project Status:</p> <p><input type="checkbox"/> New <input type="checkbox"/> Deleted</p> <p><input type="checkbox"/> In Progress <input type="checkbox"/> On Hold</p> <p><input checked="" type="checkbox"/> Completed</p>	<p>Project Priority in CIP Category:</p> <p><input checked="" type="checkbox"/> Essential (Start within 1 yr)</p> <p><input type="checkbox"/> Necessary (Start within 1 to 3 yrs)</p> <p><input type="checkbox"/> Desirable (Start within 3 to 5 yrs)</p> <p><input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>					
<p>Project Location Map:</p> <p align="center">CITYWIDE</p>							
<p>Project Description:</p> <p>This project provided pavement rehabilitation for various streets in the CDBG target areas. Rehabilitation included the removal and replacement of pavement surface as well as crack sealing and applications of slurry seal to extend the service life of the street pavement.</p> <p>Design: Completed Advetise/Award: Completed Construction: Completed November 2019</p> <p>Justification or Significance of Improvement:</p> <p>The project was within CDBG target areas and eligible to receive CDBG funding. Streets were prioritized and selected for rehabilitation based on their pavement conditions.</p> <p>Estimated Maintenance Costs:</p> <p>Street maintenance is typically funded by Gas Tax and Measure A funds, and costs on average are approximately \$1.40 / square foot for grind and overlay and \$0.30 / square foot for slurry seal. Street maintenance costs over a 20 year period are estimated to average almost \$12,000 per 13 foot wide lane mile per year. Street maintenance funding will be part of the deferred maintenance for the whole network.</p>							
<p>Life-to-Date Expenditures Through FY 2019/2020: 496,795</p>							
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other	0	0	0				
PROJECT TOTAL	0	0	0	0	0	0	0
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
REVENUE TOTAL	0	0	0	0	0	0	0

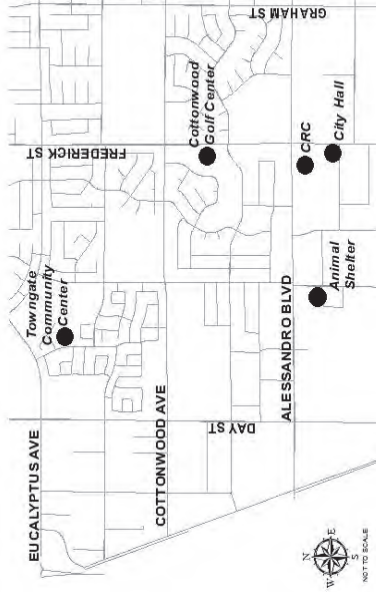
CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Pavement Rehabilitation for Various Streets (CDBG FY 19/20)</p>		<p>Project Status: <input type="checkbox"/> New <input type="checkbox"/> In Progress <input checked="" type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>		<p>Project Priority in CIP Category: <input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>			
<p>Department / Division: Public Works Department / Capital Projects Division</p>		<p>Project Location Map: CITYWIDE</p>					
<p>Project Description: This project provided pavement rehabilitation for various streets in the CDBG target areas. Rehabilitation included the removal and replacement of pavement surface as well as crack sealing and applications of slurry seal to extend the service life of the street pavement. Design: Completed Advetise/Award: Completed Construction: Completed February 2020</p>		<p>Justification or Significance of Improvement: The project was within CDBG target areas and eligible to receive CDBG funding. Streets were prioritized and selected for rehabilitation based on their pavement conditions.</p>					
<p>Estimated Maintenance Costs: Street maintenance is typically funded by Gas Tax and Measure A funds, and costs on average are approximately \$1.40 / square foot for grind and overlay and \$0.30 / square foot for slurry seal. Street maintenance costs over a 20 year period are estimated to average almost \$12,000 per 13 foot wide lane mile per year. Street maintenance funding will be part of the deferred maintenance for the whole network.</p>		<p>Council District(s): <input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>					
<p>Life-to-Date Expenditures Through FY 2019/2020: 1,607,670</p>		<p>FY 21/22 - FY 22/23 Budget</p>					
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other	3,720						
PROJECT TOTAL	3,720	0	0	0	0	0	0
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Cap Proj Reim (3008) 801 0084-3008	3,720						
REVENUE TOTAL	3,720	0	0	0	0	0	0

CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond



CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: ADA Improvements at City Facilities	Project Status: <input type="checkbox"/> New <input type="checkbox"/> In Progress <input checked="" type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold	Project Priority in CIP Category: <input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)				
Department / Division: Financial & Management Services/Purchasing & Facilities	Project Location Map: 					
Project Description: Completion of ADA Improvements, including adjustment of reach ranges and door pressures, handrails correction, path of travel installation, correction to restroom fixtures, including toilets, dispensers, grab bars, etc. Locations: Animal Shelter City Hall Cottonwood Golf Center Moreno Valley CRC Towngate Community Center						
Justification or Significance of Improvement: Completion of the ADA recommended corrections improved accessibility and made it possible for those who have disabilities, who may have previously been unable to access to the facility, to utilize and enjoy the services and programs offered.	Estimated Maintenance Costs: N/A					
Life-to-Date Expenditures Through FY 2019/2020: 400,000						
PROJECT PHASE	Budget FY 2020/2021	FY 19/20 - FY 20/21 Budget	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other						
PROJECT TOTAL	0	0	0	0	0	0
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
REVENUE TOTAL	0	0	0	0	0	0


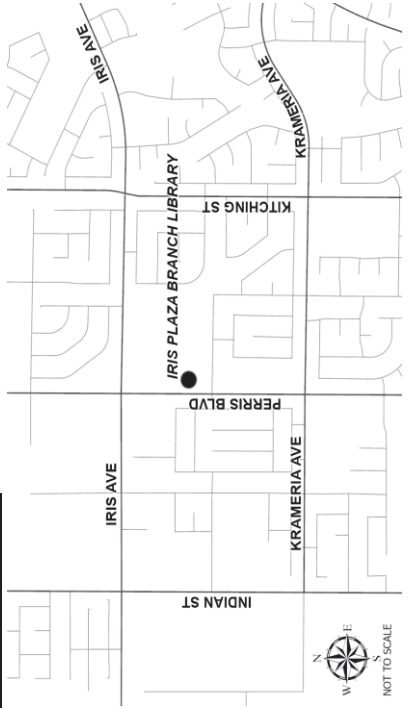
CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Civic Center Amphitheater and Park</p> <p>Department / Division: Parks & Community Services Department / Parks Division</p>	<p>Project Status:</p> <p><input type="checkbox"/> New <input type="checkbox"/> Deleted</p> <p><input type="checkbox"/> In Progress <input type="checkbox"/> On Hold</p> <p><input checked="" type="checkbox"/> Completed</p>	<p>Project Priority in CIP Category:</p> <p><input checked="" type="checkbox"/> Essential (Start within 1 yr)</p> <p><input type="checkbox"/> Necessary (Start within 1 to 3 yrs)</p> <p><input type="checkbox"/> Desirable (Start within 3 to 5 yrs)</p> <p><input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>																																										
<p>Project Location Map:</p>																																												
<p>Council District(s):</p> <p><input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>																																												
<p>Project Description:</p> <p>This project consisted of a 7-acre park featuring a 500-600 seat outdoor amphitheater with arched seating facing a raised stage platform on the City-owned vacant lot on the southeast corner of Veteran's Way and Alessandro Boulevard, west of the Conference and Recreation Center. Capital Projects Division assisted with managing this Parks Division Project.</p> <p>Construction: Completed June 2021</p> <p>Justification or Significance of Improvement:</p> <p>The project was approved by the City Council on August 21, 2018. The venue may be used to host many existing City programs and activities, as well as new events offered by the City in partnership with school district and others interested in renting the facility.</p> <p>Estimated Maintenance Costs:</p> <p>Annual park maintenance costs average approximately \$12,000 / acre based on budget information provided by the Parks Maintenance Division. Actual maintenance costs may vary depending on the size and amenities of the site. Parks maintenance is typically funded by Zone A (CDF No. 1 for newer parks).</p>																																												
<p>Life-to-Date Expenditures Through FY 2019/2020: 2,531,616</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:50%;"></th> <th style="width:15%;">New Request FY 2021/2022</th> <th style="width:15%;">New Request FY 2022/2023</th> <th style="width:15%;">FY 2023/2024</th> <th style="width:15%;">FY 2024/2025</th> <th style="width:15%;">FY 2025/2026 and Beyond</th> <th style="width:15%;">Total</th> </tr> </thead> <tbody> <tr> <td>PROJECT PHASE</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Prelim. Eng. / Environ. Design</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Right of Way Construction</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Other</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>PROJECT TOTAL</td> <td align="right">0</td> <td align="right">0</td> <td align="right">0</td> <td align="right">0</td> <td align="right">0</td> <td align="right">0</td> </tr> </tbody> </table>				New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total	PROJECT PHASE							Prelim. Eng. / Environ. Design							Right of Way Construction							Other							PROJECT TOTAL	0	0	0	0	0	0
	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total																																						
PROJECT PHASE																																												
Prelim. Eng. / Environ. Design																																												
Right of Way Construction																																												
Other																																												
PROJECT TOTAL	0	0	0	0	0	0																																						
<p>FUNDING SOURCE</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:50%;"></th> <th style="width:15%;">New Request FY 2021/2022</th> <th style="width:15%;">New Request FY 2022/2023</th> <th style="width:15%;">FY 2023/2024</th> <th style="width:15%;">FY 2024/2025</th> <th style="width:15%;">FY 2025/2026 and Beyond</th> <th style="width:15%;">Total</th> </tr> </thead> <tbody> <tr> <td>Facility Constr (3000) 803 0037-3000</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>REVENUE TOTAL</td> <td align="right">0</td> <td align="right">0</td> <td align="right">0</td> <td align="right">0</td> <td align="right">0</td> <td align="right">0</td> </tr> </tbody> </table>				New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total	Facility Constr (3000) 803 0037-3000							REVENUE TOTAL	0	0	0	0	0	0																					
	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total																																						
Facility Constr (3000) 803 0037-3000																																												
REVENUE TOTAL	0	0	0	0	0	0																																						

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Main Library ADA Improvements</p> <p>Department / Division: Financial & Management Services/Purchasing & Facilities</p>	<p>Project Status:</p> <p><input type="checkbox"/> New <input type="checkbox"/> In Progress <input checked="" type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>					
<p>Project Location Map:</p>							
<p>Project Description: Completion of ADA Improvements, including adjustment of reach ranges and door pressures, handrail corrections, path of travel installation, correction to restroom fixtures, including toilets, dispensers, grab bars, etc.</p> <p>Justification or Significance of Improvement: Completion of the ADA recommended corrections improved accessibility and made it possible for those who have disabilities, who may have previously been unable to access the facility, to utilize and enjoy the services and programs offered.</p> <p>Estimated Maintenance Costs: N/A</p>							
<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>							
<p>Life-to-Date Expenditures Through FY 2019/2020: 64,936</p>							
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other	100,000						
PROJECT TOTAL	100,000	0	0	0	0	0	0
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
CDBG (2512) 803 0039-2512	100,000						
REVENUE TOTAL	100,000	0	0	0	0	0	0

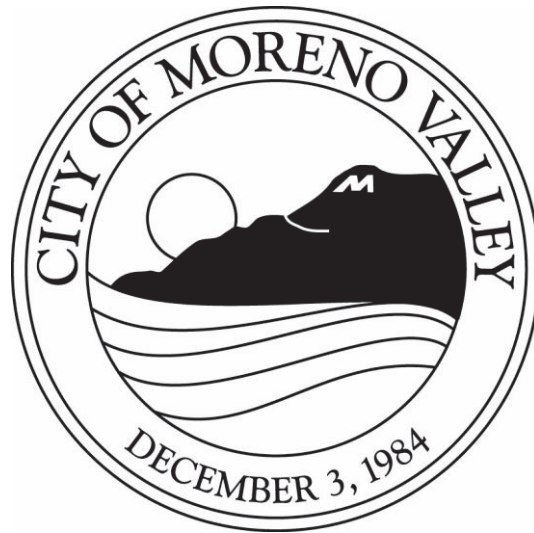
CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Satellite Library	Project Status: <input type="checkbox"/> New <input type="checkbox"/> In Progress <input checked="" type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold	Project Priority in CIP Category: <input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)	
Department / Division: Financial & Management Services Department/ Library Services Division			
Project Description: In furthering the City Council's Momentum MoVal strategic vision, the City embarked on constructing a new Satellite Library on the south side of town. Iris Plaza, a shopping center on the southeast intersection of Perris Boulevard and Iris Avenue was chosen. This location is within a mile of five elementary and middle schools. Remodeled three suites into a library with some maker space facilities and coordinated the curriculum to feed Moreno Valley College courses, to further resident's education and job prospects. Schedule: Schedules were met despite COVID-19 and the grand opening was held on August 31, 2020. Justification of Significance of Improvement: The purpose of this project was to meet the community demands of an essential facility to serve the Moreno Valley community through traditional and innovative library services. Estimated Maintenance Costs: Annual average building maintenance costs are estimated at approximately \$10/SF. Although actual maintenance costs may vary, this estimated cost is based on an industry accepted standard maintenance cost. The source of funding for maintenance and operations of the Library branch is the Library Services Fund (5010) which is a dedicated fund with revenues from property taxes and the General Fund.			
		Council District(s): <input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input checked="" type="checkbox"/> District 4	
Life-to-Date Expenditures Through FY 2019/2020: 907,020			
PROJECT PHASE	Budget FY 2020/2021	FY 2023/2024	FY 2024/2025
Prelim. Eng. / Environ. Design			
Right of Way Construction	800,028		
Other			
PROJECT TOTAL	800,028	0	0
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024	FY 2024/2025
Facility Constr (2908)			
803 0045-3000	800,028		
REVENUE TOTAL	800,028	0	0

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Replace Flooring at Various Community Services Facilities</p> <p>Department / Division: Parks & Community Services Department / Parks Division</p>	<p>Project Status:</p> <p><input type="checkbox"/> New <input type="checkbox"/> Deleted</p> <p><input type="checkbox"/> In Progress <input type="checkbox"/> On Hold</p> <p><input checked="" type="checkbox"/> Completed</p>	<p>Project Priority in CIP Category:</p> <p><input checked="" type="checkbox"/> Essential (Start within 1 yr)</p> <p><input type="checkbox"/> Necessary (Start within 1 to 3 yrs)</p> <p><input type="checkbox"/> Desirable (Start within 3 to 5 yrs)</p> <p><input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>																																								
<p>Project Location Map:</p>																																										
<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>																																										
<p>Project Description: This project replaced flooring at various community services facilities.</p> <p>Justification or Significance of Improvement: Flooring at March Community Center was worn and stained, and like replacement could not be found.</p> <p>Estimated Maintenance Costs: Annual average building maintenance costs are estimated at approximately \$10.00 / square foot. Although actual maintenance costs may vary, this estimated cost is based on an industry accepted standard maintenance cost. Funding sources also vary, depending on the type of building, but the primary source is Zone A (CFD No. 1 for newer parks).</p>																																										
<p>Life-to-Date Expenditures Through FY 2019/2020: 41,333</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:30%;">PROJECT PHASE</th> <th style="width:15%;">Budget FY 2020/2021</th> <th style="width:15%;">New Request FY 2021/2022</th> <th style="width:15%;">New Request FY 2022/2023</th> <th style="width:15%;">FY 2023/2024</th> <th style="width:15%;">FY 2024/2025</th> <th style="width:15%;">FY 2025/2026 and Beyond</th> <th style="width:15%;">Total</th> </tr> </thead> <tbody> <tr> <td>Prelim. Eng. / Environ. Design</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Right of Way Construction</td> <td>53,667</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Other</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>PROJECT TOTAL</td> <td>53,667</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> </tbody> </table>			PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total	Prelim. Eng. / Environ. Design								Right of Way Construction	53,667							Other								PROJECT TOTAL	53,667	0	0	0	0	0	0
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total																																			
Prelim. Eng. / Environ. Design																																										
Right of Way Construction	53,667																																									
Other																																										
PROJECT TOTAL	53,667	0	0	0	0	0	0																																			
<p>FUNDING SOURCE</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:30%;">PROJECT PHASE</th> <th style="width:15%;">Budget FY 2020/2021</th> <th style="width:15%;">New Request FY 2021/2022</th> <th style="width:15%;">New Request FY 2022/2023</th> <th style="width:15%;">FY 2023/2024</th> <th style="width:15%;">FY 2024/2025</th> <th style="width:15%;">FY 2025/2026 and Beyond</th> <th style="width:15%;">Total</th> </tr> </thead> <tbody> <tr> <td>PCS Cap Proj (2019) 803 0034-3016</td> <td>53,667</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>FUNDING TOTAL</td> <td>53,667</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> </tbody> </table>			PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total	PCS Cap Proj (2019) 803 0034-3016	53,667							FUNDING TOTAL	53,667	0	0	0	0	0	0																
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total																																			
PCS Cap Proj (2019) 803 0034-3016	53,667																																									
FUNDING TOTAL	53,667	0	0	0	0	0	0																																			

CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond



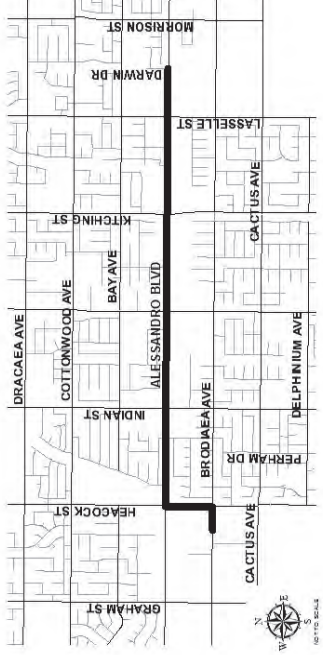
CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Heacock Street Channel Improvements</p>		<p>Project Status:</p> <p><input type="checkbox"/> New <input type="checkbox"/> Deleted</p> <p><input type="checkbox"/> In Progress <input type="checkbox"/> On Hold</p> <p><input checked="" type="checkbox"/> Completed</p>		<p>Project Priority in CIP Category:</p> <p><input checked="" type="checkbox"/> Essential (Start within 1 yr)</p> <p><input type="checkbox"/> Necessary (Start within 1 to 3 yrs)</p> <p><input type="checkbox"/> Desirable (Start within 3 to 5 yrs)</p> <p><input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>			
<p>Department / Division: Public Works Department / Capital Projects Division</p>		<p>Project Location Map:</p>					
<p>Project Description:</p> <p>The project was a multi-jurisdictional effort amongst March Joint Powers Authority (MJPA), Riverside County Flood Control & Water Conservation District (RCFC&WCD), March Air Reserve Base (MARB) and the City of Moreno Valley (COMV). The project consisted of 3 phases of improvements along Heacock Channel: Phase 1 extended between Cactus Avenue and 3,500 feet south of Cactus Avenue. This section was in MJPA's property; Phase 2 extended the improvements from end of Phase 1 to approximately 6,600 feet south of Cactus Avenue. This section was in COMV's property; Phase 3 extended from end of Phase 2 to Perris Valley Storm Drain (PVSD) Lateral A bridge. This section was in MARB's property. The City of Moreno Valley participated in funding the cost of environmental clearance, and engineering design for the Heacock Channel Project. MJPA took the lead in administering the project in environmental clearance and design phase. RCFC&WCD participated in funding the cost of construction of Phases 1 & 2, and constructs all phases of the project. MARB participated in funding the cost of construction of Phase 3. The construction cost for all three phases was estimated between \$18 and \$20 million.</p> <p>Design: Completed March 2017 Construction: Completed June 2019</p>		<p>Justification or Significance of Improvement: This project provided improved drainage in the area and reduced flooding potential to approximately 120 properties valued at \$15 million and Heacock roadway and utilities valued at \$20 million. \$1,250,000 in Area Drainage Plan fees paid to the District was granted to the City. This amount was used as City's funding for environmental clearance and engineering design.</p>					
<p>Estimated Maintenance Costs: The Riverside County Flood & Water Conservation District will maintain the channel upon project completion.</p>		<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input checked="" type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>					
<p>Life-to-Date Expenditures Through FY 2019/2020: 1,713,421</p>		<p>FY 19/20 - FY 20/21 Budget</p>					
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other							
PROJECT TOTAL	0	0	0	0	0	0	0
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
REVENUE TOTAL	0	0	0	0	0	0	0

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Moreno - Alessandro Interim Facility (Discovery Church)</p> <p>Department / Division: Public Works Department / Capital Projects Division</p>		<p>Project Status:</p> <input type="checkbox"/> New <input type="checkbox"/> In Progress <input checked="" type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold		<p>Project Priority in CIP Category:</p> <input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)			
<p>Project Description: This project consisted of an interim facility to handle existing high flows that channel through an existing church parking lot. Design and construction were reimbursable with Riverside County Flood Control and Water Conservation District (RCFC&WCD) funds.</p> <p>Design and Permitting: Completed Construction: Completed November 2020</p> <p>Justification or Significance of Improvement: Area developments were not yet in place, therefore, interim improvements were needed to slow or divert high flows.</p> <p>Estimated Maintenance Costs: Annual average costs associated with storm drain maintenance are estimated at approximately \$12' per catch basin. This does not include actual catch basin and/or pipeline replacement, which typically have lifespans of 70 to 100 years. Although actual maintenance costs may vary, these estimated maintenance costs are based on historical maintenance costs for the City of Moreno Valley's storm drain infrastructure. Drainage maintenance funding will be part of the deferred maintenance for the whole network.</p>		<p>Project Location Map:</p>					
		<p>Council District(s):</p> <input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4					
		<p>Life-to-Date Expenditures Through FY 2019/2020: 97,879</p>					
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other	342,777						
PROJECT TOTAL	342,777	0	0	0	0	0	0
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
PW Gen Cap Proj (3002) 804 0016-3002	342,777						
REVENUE TOTAL	342,777	0	0	0	0	0	0

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Alessandro Crosstown Tie		Project Status: <input type="checkbox"/> New <input type="checkbox"/> In Progress <input checked="" type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold		Project Priority in CIP Category: <input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)			
Department / Division: Financial and Management Services Department / Electric Utility Division		Project Location Map: 					
Project Description: This project installed a new electrical backbone between the Moreno Valley Substation and the Centerpointe Planning Area. The new electrical backbone was installed on Alessandro Boulevard from Morrison Street to Heacock Street, on Heacock Street from Alessandro Boulevard to Brodiaea Avenue, and on Brodiaea Avenue from Heacock Street to approximately 800' west of Heacock Street. Environmental: Completed Design: Completed Bid / Award: Completed Pre-Construction: Completed Construction: Completed November 2019		Justification or Significance of Improvement: The purpose of this project was to provide greater reliability for MVU customers, and provide greater flexibility for MVU in the management of the electrical distribution system.					
Estimated Maintenance Costs: Ongoing maintenance costs are built into Moreno Valley Utility's rate structure as part of the cost to serve.		Council District(s): <input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4					
Life-to-Date Expenditures Through FY 2019/2020: 3,094,018							
PROJECT PHASE	Budget FY 2020/2021	FY 2021/2022	FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other	215,980	0	0	0	0	0	0
PROJECT TOTAL	215,980	0	0	0	0	0	0
FUNDING SOURCE	Budget FY 2020/2021	FY 2021/2022	FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Electric-Restricted (6011) 805 0044-6011	215,980	0	0	0	0	0	0
REVENUE TOTAL	215,980	0	0	0	0	0	0

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Bay Avenue Line Extension</p> <p>Department / Division: Financial and Management Services Department / Electric Utility Division</p>	<p>Project Status:</p> <p><input type="checkbox"/> New <input type="checkbox"/> Deleted</p> <p><input type="checkbox"/> In Progress <input type="checkbox"/> On Hold</p> <p><input checked="" type="checkbox"/> Completed</p>	<p>Project Priority in CIP Category:</p> <p><input checked="" type="checkbox"/> Essential (Start within 1 yr)</p> <p><input type="checkbox"/> Necessary (Start within 1 to 3 yrs)</p> <p><input type="checkbox"/> Desirable (Start within 3 to 5 yrs)</p> <p><input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>					
<p>Project Location Map:</p>							
<p>Project Description: This project installed new electrical backbone along Bay Avenue east of Oliver Street. The new electrical backbone was installed on Bay Avenue from Bethany Road to Oliver Street.</p> <p>Environmental: Completed Design: Completed Bid / Award: Completed Pre-Construction: Completed Construction: Completed July 2019</p> <p>Justification or Significance of Improvement: This backbone installation provided a loop feed for the residential tract that was installed in Bay Avenue.</p> <p>Estimated Maintenance Costs: Ongoing maintenance costs are built into Moreno Valley Utility's rate structure as part of the cost to serve.</p>							
<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>							
<p>Life-to-Date Expenditures Through FY 2019/2020: 119,946</p>							
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other	0	0	0	0	0	0	0
PROJECT TOTAL	0	0	0	0	0	0	0
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
REVENUE TOTAL	0	0	0	0	0	0	0

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: City Hall Annex Solar Carports</p> <p>Department / Division: Financial and Management Services Department / Electric Utility Division</p>	<p>Project Status:</p> <p><input type="checkbox"/> New <input type="checkbox"/> Deleted</p> <p><input type="checkbox"/> In Progress <input type="checkbox"/> On Hold</p> <p><input checked="" type="checkbox"/> Completed</p>	<p>Project Priority in CIP Category:</p> <p><input checked="" type="checkbox"/> Essential (Start within 1 yr)</p> <p><input type="checkbox"/> Necessary (Start within 1 to 3 yrs)</p> <p><input type="checkbox"/> Desirable (Start within 3 to 5 yrs)</p> <p><input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>
<p>Project Description:</p> <p>This project constructed solar canopy structures and electric vehicle charging stations.</p> <p>Design: Completed Construction: Completed January 2021</p> <p>Justification or Significance of Improvement:</p> <p>This project promoted renewable energy and facilitate electric vehicle charging in alignment with state goals.</p> <p>Estimated Maintenance Costs:</p> <p>Ongoing maintenance costs are built into Moreno Valley Utility's rate structure as part of the cost to serve.</p>		
<p>Project Location Map:</p>		
<p>Council District(s):</p> <p><input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>		


PROJECT PHASE	Budget FY 2020/2021	Life-to-Date Expenditures Through FY 2019/2020: 248,638				FY 19/20 - FY 20/21 Budget				
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total			
Prelim. Eng. / Environ. Design										
Right of Way Construction	1,551,361									
Other										
PROJECT TOTAL	1,551,361	0	0	0	0	0	0	0	0	0
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total			
Electric-Restricted (6011)										
805 0054-6011	1,551,361									
REVENUE TOTAL	1,551,361	0	0	0	0	0	0	0	0	0

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

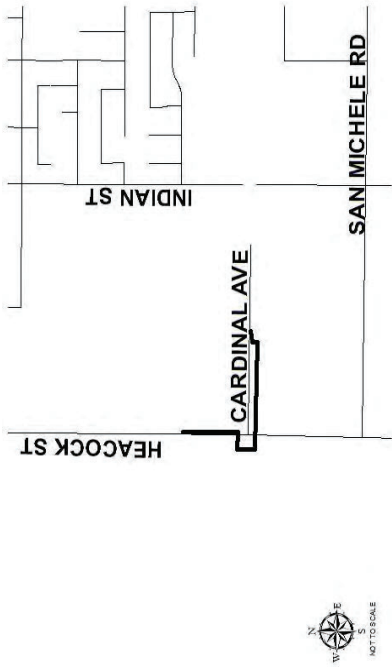
<p>Project Title: Day Street Line Extension</p> <p>Department / Division: Financial and Management Services Department / Electric Utility Division</p>	<p>Project Status:</p> <p><input type="checkbox"/> New <input type="checkbox"/> In Progress <input checked="" type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>
<p>Project Location Map:</p>		
<p>Project Description: This project installed new electrical backbone facilities including conduit, cable, underground structures, pad mounted equipment switchgear, and splicing components.</p> <p>Environmental: Completed Design: Completed Bid / Award: Completed Pre-Construction: Completed Construction: Completed August 2020</p> <p>Justification or Significance of Improvement: The installation extended distribution cable on Day Street from just south of Alessandro Boulevard to Eucalyptus Avenue and on Alessandro Boulevard from Veterans Way to Day Street. It added an available circuit to provide service to commercial properties along Day Street and also extend north to the Edgemont area.</p> <p>Estimated Maintenance Costs: Ongoing maintenance costs are built into Moreno Valley Utility's rate structure as part of the cost to serve.</p>		
<p>Council District(s):</p> <p><input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>		

		FY 19/20 - FY 20/21 Budget					
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design	2,109						
Right of Way Construction	941,590						
PROJECT TOTAL	941,590	0	0	0	0	0	0
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Electric-Restricted (6011) 805 0049-6011	941,590						
REVENUE TOTAL	941,590	0	0	0	0	0	0

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Heacock Crosstown Tie</p> <p>Department / Division: Financial and Management Services Department / Electric Utility Division</p>	<p>Project Status:</p> <p><input type="checkbox"/> New <input type="checkbox"/> Deleted</p> <p><input type="checkbox"/> In Progress <input type="checkbox"/> On Hold</p> <p><input checked="" type="checkbox"/> Completed</p>	<p>Project Priority in CIP Category:</p> <p><input checked="" type="checkbox"/> Essential (Start within 1 yr)</p> <p><input type="checkbox"/> Necessary (Start within 1 to 3 yrs)</p> <p><input type="checkbox"/> Desirable (Start within 3 to 5 yrs)</p> <p><input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>					
<p>Project Location Map:</p> 							
<p>Project Description:</p> <p>This project installed underground electrical backbone facilities including conduit, cable, underground structures on Heacock Street from Cactus Avenue to south of Gentian Avenue.</p> <p>Environmental: Completed Design: Completed Bid / Award: Completed Pre-Construction: Completed Construction: Completed August 2019</p> <p>Justification of Significance of Improvement: The purpose of this project was to provide greater reliability for MVU customers, and provide greater flexibility for MVU in the management of the electrical distribution system.</p> <p>Estimated Maintenance Costs: Ongoing maintenance costs are built into Moreno Valley Utility's rate structure as part of the cost to serve.</p>							
<p>Council District(s):</p> <p><input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>							
<p>Life-to-Date Expenditures Through FY 2019/2020: 2,291,841</p>							
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other	0						
PROJECT TOTAL	0	0	0	0	0	0	0
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
REVENUE TOTAL	0	0	0	0	0	0	0

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Indian Interconnect Line Extension</p> <p>Department / Division: Financial and Management Services Department / Electric Utility Division</p>	<p>Project Status:</p> <p><input type="checkbox"/> New <input type="checkbox"/> In Progress <input checked="" type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>					
<p>Project Location Map:</p> 							
<p>Project Description: This project installed additional electrical backbone cable along Cardinal Avenue to Heacock Street. It also continued north along Heacock Street approximately 830 feet north to the existing facilities. This allowed for additional load to the Indian interconnect other than that from Amazon.</p> <p>Environmental: Completed Design: Completed Bid / Award: Completed Pre-Construction: Completed Construction: Completed July 2019</p> <p>Justification or Significance of Improvement: This project extended cable for the Indian interconnect which then accommodated load other than that from Amazon.</p> <p>Estimated Maintenance Costs: Ongoing maintenance costs are built into Moreno Valley Utility's rate structure as part of the cost to serve.</p>							
<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input checked="" type="checkbox"/> District 4</p>							
<p>Life-to-Date Expenditures Through FY 2019/2020: 95,095</p>							
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other	0						
PROJECT TOTAL	0	0	0	0	0	0	0
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
REVENUE TOTAL	0	0	0	0	0	0	0

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Mobile Advanced Metering Infrastructure (AMI) System</p> <p>Department / Division: Financial and Management Services Department / Electric Utility Division</p>		<p>Project Status:</p> <p><input type="checkbox"/> New <input type="checkbox"/> Deleted</p> <p><input type="checkbox"/> In Progress <input type="checkbox"/> On Hold</p> <p><input checked="" type="checkbox"/> Completed</p>		<p>Project Priority in CIP Category:</p> <p><input checked="" type="checkbox"/> Essential (Start within 1 yr)</p> <p><input type="checkbox"/> Necessary (Start within 1 to 3 yrs)</p> <p><input type="checkbox"/> Desirable (Start within 3 to 5 yrs)</p> <p><input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>			
<p>Project Description:</p> <p>This project involved the installation of electric meters with Mobile Advanced Metering Infrastructure (AMI) for all Moreno Valley Utility (MVU) customers over a 30 month period.</p> <p>Bid / Award: Completed Construction: Completed June 2021</p> <p>Justification or Significance of Improvement:</p> <p>AMI expedited the collection of data for billing as well as incentivize customers to better manage their electricity usage.</p> <p>Estimated Maintenance Costs:</p> <p>Ongoing maintenance costs are built into Moreno Valley Utility's rate structure as part of the cost to serve.</p>		<p>Project Location Map:</p>					
		<p>Council District(s):</p> <p><input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>					
		<p>Life-to-Date Expenditures Through FY 2019/2020: 1,113,884</p>					
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design	756,299						
Equipment Procurement	50,000						
Construction	250,000						
Other							
PROJECT TOTAL	1,056,299	0	0	0	0	0	0
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Electric-Restricted (6011)	1,056,299						
805 0045-6011							
REVENUE TOTAL	1,056,299	0	0	0	0	0	0

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: MVU Streetlight LED Retrofit		Project Status: <input type="checkbox"/> New <input type="checkbox"/> In Progress <input checked="" type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold		Project Priority in CIP Category: <input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)			
Department / Division: Financial and Management Services Department / Electric Utility Division		Project Location Map:					
Project Description: This project involved the purchase and retrofit of eligible streetlights from SCE to LED fixtures. MVU furnished inventory of LED luminaires and photo cells for the project. The project also included the installation of house-side shields on LED streetlights, as needed, and the removal and disposal of luminaire heads and any other discarded materials. Construction: Completed December 2019		CITYWIDE					
Justification or Significance of Improvement: This project facilitated energy savings.		Council District(s): <input checked="" type="checkbox"/> District 1 <input checked="" type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input checked="" type="checkbox"/> District 4					
Estimated Maintenance Costs: Ongoing maintenance costs are built into Moreno Valley Utility's rate structure as part of the cost to serve.							
Life-to-Date Expenditures Through FY 2019/2020: 7,451,426							
PROJECT PHASE	Budget FY 2020/2021	FY 19/20 - FY 20/21 Budget New Request FY 2021/2022	FY 2022/2023 New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Equipment Procurement Construction Other	0	0	0	0	0	0	0
FUNDING SOURCE	Budget FY 2020/2021	FY 2021/2022 New Request FY 2021/2022	FY 2022/2023 New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
	0	0	0	0	0	0	0
REVENUE TOTAL	0	0	0	0	0	0	0

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Calsense Irrigation Controller Upgrades</p> <p>Department / Division: Parks & Community Services Department / Parks Division</p>		<p>Project Status: <input type="checkbox"/> New <input type="checkbox"/> In Progress <input checked="" type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>		<p>Project Priority in CIP Category: <input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>	
<p>Project Description: Replaced older model Calsense Controllers with updated model at Cold Creek Staging Area, Cottonwood Staging Area, Fay Avenue Bikeway, and Rancho Verde Staging Area. Materials: Completed Construction: Completed February 2020</p> <p>Justification or Significance of Improvement: Upgrading the Calsense Controllers allowed more effective communication with the central site and added mobile phone access to controllers.</p> <p>Estimated Maintenance Costs: Annual park maintenance costs average approximately \$12,000 / acre based on budget information provided by the Parks Maintenance Division. Actual maintenance costs may vary depending on the size and amenities of the site. Parks maintenance is typically funded by Zone A (CDF No. 1 for newer parks).</p>		<p>Project Location Map:</p>			
<p>Life-to-Date Expenditures Through FY 2019/2020: 31,073</p>		<p>Council District(s): <input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input checked="" type="checkbox"/> District 4</p>			
<p>PROJECT PHASE</p> <p>Prelim. Eng. / Environ. Design Right of Way Construction Other</p>		<p>Budget FY 2020/2021</p>		<p>FY 19/20 - FY 20/21 Budget</p>	
<p>PROJECT TOTAL</p>		<p>0</p>		<p>New Request FY 2021/2022: 0 New Request FY 2022/2023: 0 Total: 0</p>	
<p>FUNDING SOURCE</p>		<p>Budget FY 2020/2021</p>		<p>FY 2023/2024</p>	
<p>0</p>		<p>0</p>		<p>FY 2025/2026 and Beyond: 0 Total: 0</p>	
<p>REVENUE TOTAL</p>		<p>0</p>		<p>FY 2021/2022: 0 FY 2022/2023: 0 FY 2023/2024: 0 FY 2024/2025: 0 FY 2025/2026 and Beyond: 0 Total: 0</p>	

CITY OF MORENO VALLEY
 Capital Improvement Plan - Project Details
 FYs 2021-2026 and Beyond

<p>Project Title: Celebration Park Splash Pad UV Purification System</p> <p>Department / Division: Parks & Community Services Department / Parks Division</p> <p>Project Status: <input type="checkbox"/> New <input type="checkbox"/> In Progress <input checked="" type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p> <p>Project Priority in CIP Category: <input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>		<p>Project Location Map:</p> <p>Council District(s): <input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input checked="" type="checkbox"/> District 4</p>																																																																									
<p>Project Description: Installed an ultraviolet water purification system for the splash pad at Celebration Park. Construction: Completed June 2020</p> <p>Justification or Significance of Improvement: Adding an ultraviolet purification system enhanced the current chlorine/acid purification system and improved water quality by removing bacteria.</p> <p>Estimated Maintenance Costs: Splash pad maintenance costs average approximately \$21,000 per summer season. Maintenance will be funded by CFD No. 1.</p>		<p>Life-to-Date Expenditures Through FY 2019/2020: 25,281</p> <table border="1"> <thead> <tr> <th></th> <th>FY 19/20 - FY 20/21 Budget</th> <th>FY 2021/2022</th> <th>FY 2022/2023</th> <th>FY 2023/2024</th> <th>FY 2024/2025</th> <th>FY 2025/2026 and Beyond</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>PROJECT PHASE</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Prelim. Eng. / Environ. Design</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Right of Way Construction</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Other</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>PROJECT TOTAL</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>FUNDING SOURCE</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Budget FY 2020/2021</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>REVENUE TOTAL</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> </tbody> </table>			FY 19/20 - FY 20/21 Budget	FY 2021/2022	FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total	PROJECT PHASE								Prelim. Eng. / Environ. Design								Right of Way Construction								Other								PROJECT TOTAL	0	0	0	0	0	0	0	FUNDING SOURCE								Budget FY 2020/2021								REVENUE TOTAL	0	0	0	0	0	0	0
	FY 19/20 - FY 20/21 Budget	FY 2021/2022	FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total																																																																				
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Prelim. Eng. / Environ. Design																																																																											
Right of Way Construction																																																																											
Other																																																																											
PROJECT TOTAL	0	0	0	0	0	0	0																																																																				
FUNDING SOURCE																																																																											
Budget FY 2020/2021																																																																											
REVENUE TOTAL	0	0	0	0	0	0	0																																																																				

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Civic Center Electrical Upgrades</p> <p>Department / Division: Parks & Community Services Department / Parks Division</p> <p>Project Description: This project upgraded electrical systems and provided associated material and equipment costs to support public events at the Conference and Recreation Center. Previous work included electrical and lighting upgrades.</p> <p>Construction: Completed June 2020</p> <p>Justification or Significance of Improvement: The upgrades supported community events at the Civic Center complex.</p> <p>Estimated Maintenance Costs: Ongoing maintenance cost will be nominal.</p>	<p>Project Status:</p> <p><input type="checkbox"/> New <input type="checkbox"/> In Progress <input checked="" type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p> <p>Project Priority in CIP Category:</p> <p><input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>	<p>Project Location Map:</p> <p>Council District(s):</p> <p><input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>
<p>Life-to-Date Expenditures Through FY 2019/2020: 107,087</p>		
PROJECT PHASE	Budget FY 2020/2021	FY 19/20 - FY 20/21 Budget
Prelim. Eng. / Environ. Design Right of Way Construction Other		New Request FY 2021/2022
		New Request FY 2022/2023
		FY 2023/2024
		FY 2024/2025
		FY 2025/2026 and Beyond
		Total
PROJECT TOTAL	0	0
FUNDING SOURCE	Budget FY 2020/2021	FY 2023/2024
		FY 2024/2025
		FY 2025/2026 and Beyond
		Total
REVENUE TOTAL	0	0

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Cottonwood Recreation Center Exterior Landscaping</p> <p>Department / Division: Parks & Community Services Department / Parks Division</p> <p>Project Status: <input type="checkbox"/> New <input type="checkbox"/> In Progress <input checked="" type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p> <p>Project Priority in CIP Category: <input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>		<p>Project Location Map:</p> <p>Council District(s): <input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>													
<p>Project Description: This project renovated the Cottonwood Recreation Center Exterior Landscaping to include tubular steel fencing, gates, landscaping, and marquee sign.</p> <p>Fencing and Gates: Completed Marquee Sign: Completed Construction: Completed February 2020</p> <p>Justification or Significance of Improvement: Exterior fencing and landscaping provided scenic outdoor rental opportunities.</p> <p>Estimated Maintenance Costs: Annual average building maintenance costs are estimated at approximately \$10.00 / square foot. Although actual maintenance costs may vary, this estimated cost is based on an industry accepted standard maintenance cost. Funding sources also vary, depending on the type of building, but the primary source is Zone A. Anticipated increase in rental revenue will help to fund these maintenance costs.</p>		<p>Life-to-Date Expenditures Through FY 2019/2020: 89,879</p>													
<p>PROJECT PHASE</p> <p>Prelim. Eng. / Environ. Design Right of Way Construction Other</p>		<p>FY 19/20 - FY 20/21 Budget</p> <table border="1"> <tr> <td>New Request FY 2021/2022</td> <td>New Request FY 2022/2023</td> <td>FY 2023/2024</td> <td>FY 2024/2025</td> <td>FY 2025/2026 and Beyond</td> <td>Total</td> </tr> <tr> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> </table>		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total	0	0	0	0	0	0
New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total										
0	0	0	0	0	0										
<p>FUNDING SOURCE</p> <p>Budget FY 2020/2021</p>		<table border="1"> <tr> <td>New Request FY 2021/2022</td> <td>New Request FY 2022/2023</td> <td>FY 2023/2024</td> <td>FY 2024/2025</td> <td>FY 2025/2026 and Beyond</td> <td>Total</td> </tr> <tr> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> </table>		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total	0	0	0	0	0	0
New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total										
0	0	0	0	0	0										
<p>REVENUE TOTAL</p> <p>0</p>		<p>0</p>													

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Moreno Valley Community Park Skate Park (Construction)</p> <p>Department / Division: Parks & Community Services Department / Parks Division</p>		<p>Project Status:</p> <p><input type="checkbox"/> New <input type="checkbox"/> In Progress <input checked="" type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>		<p>Project Priority in CIP Category:</p> <p><input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>	
<p>Project Description: This project consisted of the construction of a skate park at Moreno Valley Community Park. The project included minimal grading, concrete slabs, and installation of skate elements. Site amenities included benches, shade structure, and artificial turf. Construction: Completed FY19/20</p> <p>Justification or Significance of Improvement: On August 21, 2018, the City Council approved the appropriation of the DIF funds for the construction of a new skate park. The skate park provided a dynamic venue to keep youth active and engaged after school hours and served the large and growing community of the skaters of all ages.</p> <p>Estimated Maintenance Costs: Annual park maintenance costs average approximately \$12,000 / acre based on budget information provided by the Parks Maintenance Division. Actual maintenance costs may vary depending on the size and amenities of the site. Parks maintenance is typically funded by Zone A (CDF No. 1 for newer parks).</p>		<p>Project Location Map:</p>			
		<p>Council District(s):</p> <p><input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>			
		<p>Life-to-Date Expenditures Through FY 2019/2020: 633,503</p>			
PROJECT PHASE	Budget FY 2020/2021	FY 19/20 - FY 20/21 Budget	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond
Prelim. Eng. / Environ. Design Right of Way Construction Other		New Request FY 2021/2022	New Request FY 2022/2023	Total	Total
		0	0	0	0
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2025/2026 and Beyond
		0	0	0	0
REVENUE TOTAL	0	0	0	0	0

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Moreno Valley Community Park Skate Park (Design)</p> <p>Department / Division: Parks & Community Services Department / Parks Division</p>		<p>Project Status:</p> <p><input type="checkbox"/> New <input type="checkbox"/> In Progress <input checked="" type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>		<p>Project Priority in CIP Category:</p> <p><input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>																																																	
<p>Project Description: This project was originally entitled Fairway Park (Skate Park Addition). This project allowed for the design and architectural construction services of said skate park, including skate elements, site amenities, and lighting.</p> <p>Design: Completed Inspections and As-builts: Completed FY19/20</p> <p>Justification or Significance of Improvement: The skate park provided a dynamic venue to keep youth active and engaged after school hours and served the large and growing community of skaters of all ages.</p> <p>Estimated Maintenance Costs: Annual park maintenance costs average approximately \$12,000 / acre based on budget information provided by the Parks Maintenance Division. Actual maintenance costs may vary depending on the size and amenities of the site. Parks maintenance is typically funded by Zone A (CDF No. 1 for newer parks).</p>		<p>Project Location Map:</p> <p>Council District(s):</p> <p><input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>																																																			
<p>Life-to-Date Expenditures Through FY 2019/2020: 57,123</p>		<table border="1"> <thead> <tr> <th></th> <th>FY 2020/2021 Budget</th> <th>FY 2021/2022 New Request</th> <th>FY 2022/2023 New Request</th> <th>FY 2023/2024</th> <th>FY 2024/2025</th> <th>FY 2025/2026 and Beyond</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>PROJECT PHASE</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Prelim. Eng. / Environ. Design</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Right of Way Construction</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Other</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>PROJECT TOTAL</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> </tbody> </table>					FY 2020/2021 Budget	FY 2021/2022 New Request	FY 2022/2023 New Request	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total	PROJECT PHASE								Prelim. Eng. / Environ. Design								Right of Way Construction								Other								PROJECT TOTAL	0	0	0	0	0	0	0
	FY 2020/2021 Budget	FY 2021/2022 New Request	FY 2022/2023 New Request	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total																																														
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Prelim. Eng. / Environ. Design																																																					
Right of Way Construction																																																					
Other																																																					
PROJECT TOTAL	0	0	0	0	0	0	0																																														
<p>FUNDING SOURCE</p>		<table border="1"> <thead> <tr> <th></th> <th>FY 2020/2021 Budget</th> <th>FY 2021/2022 New Request</th> <th>FY 2022/2023 New Request</th> <th>FY 2023/2024</th> <th>FY 2024/2025</th> <th>FY 2025/2026 and Beyond</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>REVENUE TOTAL</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> </tbody> </table>					FY 2020/2021 Budget	FY 2021/2022 New Request	FY 2022/2023 New Request	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total									REVENUE TOTAL	0	0	0	0	0	0	0																								
	FY 2020/2021 Budget	FY 2021/2022 New Request	FY 2022/2023 New Request	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total																																														
REVENUE TOTAL	0	0	0	0	0	0	0																																														

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Alessandro Boulevard / Grant Street Traffic Signal</p>		<p>Project Status:</p> <p><input type="checkbox"/> New <input type="checkbox"/> Deleted</p> <p><input type="checkbox"/> In Progress <input type="checkbox"/> On Hold</p> <p><input checked="" type="checkbox"/> Completed <input checked="" type="checkbox"/></p>		<p>Project Priority in CIP Category:</p> <p><input checked="" type="checkbox"/> Essential (Start within 1 yr)</p> <p><input type="checkbox"/> Necessary (Start within 1 to 3 yrs)</p> <p><input type="checkbox"/> Desirable (Start within 3 to 5 yrs)</p> <p><input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>																																					
<p>Department / Division: Public Works Department / Transportation Engineering Division</p>		<p>Project Location Map:</p>																																							
<p>Project Description: This project signalized the intersection of Alessandro Boulevard and Grant Street. The intersection was within the CDBG target area. The available CDBG funding was for preliminary design, environmental clearance, design, and construction. Portion of the subsequent construction phase was funded with DIF Traffic Signal Fund.</p> <p>Preliminary Engineering / Environmental: Completed Design: Completed Construction: Completed January 2020</p> <p>Justification or Significance of Improvement: Due to increased traffic within the vicinity of this intersection, a traffic signal was programmed for design and construction.</p> <p>Estimated Maintenance Costs: Annual average costs associated with traffic signal maintenance are approximately \$3,500 per traffic signal. Although actual maintenance costs may vary, this cost is based on the City's historical maintenance costs for traffic signals. Traffic signal maintenance will be funded by the General Fund.</p>		<p>Council District(s):</p> <p><input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>																																							
<p>Life-to-Date Expenditures Through FY 2019/2020: 732,151</p>		<table border="1"> <thead> <tr> <th></th> <th>FY 19/20 - FY 20/21 Budget</th> <th>FY 2023/2024</th> <th>FY 2024/2025</th> <th>FY 2025/2026 and Beyond</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>PROJECT PHASE</td> <td>New Request FY 2021/2022</td> <td>New Request FY 2022/2023</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Prelim. Eng. / Environ. Design</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Right of Way Construction</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Other</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>PROJECT TOTAL</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> </tbody> </table>					FY 19/20 - FY 20/21 Budget	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total	PROJECT PHASE	New Request FY 2021/2022	New Request FY 2022/2023				Prelim. Eng. / Environ. Design						Right of Way Construction						Other						PROJECT TOTAL	0	0	0	0	0
	FY 19/20 - FY 20/21 Budget	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total																																				
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Prelim. Eng. / Environ. Design																																									
Right of Way Construction																																									
Other																																									
PROJECT TOTAL	0	0	0	0	0																																				
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	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total																																					
New Request FY 2021/2022																																									
New Request FY 2022/2023																																									
Budget FY 2020/2021																																									
REVENUE TOTAL	0	0	0	0																																					


CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Dynamic Traveler Alert Message Boards</p> <p>Department / Division: Public Works Department / Transportation Engineering Division</p>	<p>Project Status:</p> <p><input type="checkbox"/> New <input type="checkbox"/> Deleted</p> <p><input type="checkbox"/> In Progress <input type="checkbox"/> On Hold</p> <p><input checked="" type="checkbox"/> Completed <input checked="" type="checkbox"/></p>	<p>Project Priority in CIP Category:</p> <p><input checked="" type="checkbox"/> Essential (Start within 1 yr)</p> <p><input type="checkbox"/> Necessary (Start within 1 to 3 yrs)</p> <p><input type="checkbox"/> Desirable (Start within 3 to 5 yrs)</p> <p><input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>					
<p>Project Location Map:</p>							
<p>Project Description: Project included the deployment of three Dynamic Message Signs (DMS) along arterial streets approaching I-215 and SR-60. The DMS would alert motorists of incidents along the freeways or city streets and advise an alternate route.</p> <p>Environmental Clearance: Completed Design: Completed Complete Construction: Completed</p> <p>Justification or Significance of Improvement: The City received \$340,000 in Congestion Mitigation and Air Quality (CMAQ) Federal funding from the Riverside County Transportation Commission (RCTC) 2013 Multi-Funding Call for Projects to construct this project.</p> <p>Estimated Maintenance Costs: The cost to maintain the dynamic message signs is consistent with other traffic control devices.</p>							
<p>Council District(s):</p> <p><input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>							
<p>Life-to-Date Expenditures Through FY 2019/2020: 541,674</p>							
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other	0	0	0	0	0	0	0
PROJECT TOTAL	0	0	0	0	0	0	0
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
REVENUE TOTAL	0	0	0	0	0	0	0

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Guardrail Upgrades		Project Status: <input type="checkbox"/> New <input type="checkbox"/> In Progress <input checked="" type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold		Project Priority in CIP Category: <input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)			
Department / Division: Public Works Department / Transportation Engineering Division		Project Location Map: CITYWIDE					
Project Description: This project provided upgrades to the existing guardrails at 20 locations to comply with current standards. Funding was provided by the Highway Safety Improvement Program (HSIP) Cycle 8. Final Design: Completed Caltrans Approval of Construction: Completed Advertise / Bid / Award: Completed Construction: Completed December 2020		Council District(s): <input checked="" type="checkbox"/> District 1 <input checked="" type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4					
Justification or Significance of Improvement: The project improved public safety by improving the performance of the guardrail systems.							
Estimated Maintenance Costs: No new guardrail is proposed for installation under this project. The project is expected to decrease maintenance cost by extending the life of the guardrail systems.							
Life-to-Date Expenditures Through FY 2019/2020: 77,645							
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design	100,000						
Right of Way Construction	602,253						
Other							
PROJECT TOTAL	702,253	0	0	0	0	0	0
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Cap Proj Grants (2301) 808 0027-2301	702,253						
REVENUE TOTAL	702,253	0	0	0	0	0	0

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: ITS Deployment Phase 1B		Project Status: <input type="checkbox"/> New <input type="checkbox"/> In Progress <input checked="" type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold		Project Priority in CIP Category: <input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)			
Department / Division: Public Works Department / Transportation Engineering Division		Project Location Map: 					
Project Description: This project included the deployment of critical field devices and supporting communications system as a part of the City's Traffic Management System. Intelligent Transportation Systems (ITS) improvements included an ethernet fiber-optic backbone system, closed circuit television (CCTV) cameras at 32 key intersections, and new traffic signal controllers at 45 existing signalized intersections. Receive Caltrans Authorization: Completed Design: Completed Complete Construction: Completed		Council District(s): <input checked="" type="checkbox"/> District 1 <input checked="" type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4					
Justification or Significance of Improvement: The City received \$1.54 million Congestion Mitigation and Air Quality (CMAQ) Federal funding and \$490,000 Mobile Source Air Pollution Reduction Committee (MSRC) from the Riverside County Transportation Commission (RCTC) 2013 Multi-funding Call for Projects to construct this critical phase of the City's ITS Master Plan.							
Estimated Maintenance Costs: The budget is largely being used to replace outdated traffic control equipment and therefore should reduce ongoing maintenance costs. Maintenance of traffic control equipment is funded by the operating budget. Maintenance cost of fiber optic communication media and equipment is expected to cost \$4,000 per mile per annum. The cost to maintain CCTV cameras is projected to be \$500 per camera per annum.							
Life-to-Date Expenditures Through FY 2019/2020: 2,458,792							
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other	0	0	0	0	0	0	0
PROJECT TOTAL	0	0	0	0	0	0	0
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
	0	0	0	0	0	0	0
REVENUE TOTAL	0	0	0	0	0	0	0

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Systemic Safety Analysis Report Program

Department / Division: Public Works Department / Transportation Engineering Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:
CITYWIDE

Project Description:
 Moreno Valley received a grant from the State of California to analyze collision data and field conditions to prioritize improvements to address pedestrian safety.
 Project Schedule: Study Completed June 2020

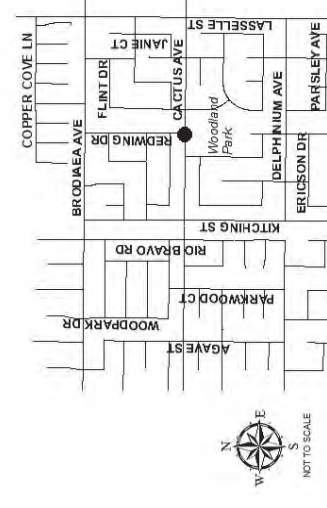
Justification or Significance of Improvement:
 The project identified future grant opportunities to enhance pedestrian safety.

Estimated Maintenance Costs:
 The project will not result in additional maintenance.

PROJECT PHASE	Budget FY 2020/2021	Life-to-Date Expenditures Through FY 2019/2020: 149,746				Total
		New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025 and Beyond	
Prelim. Eng. / Environ. Design Right of Way Construction Other						
PROJECT TOTAL	0	0	0	0	0	0
FUNDING SOURCE	Budget FY 2020/2021					
REVENUE TOTAL	0	0	0	0	0	0

Council District(s):
 District 1
 District 2
 District 3
 District 4

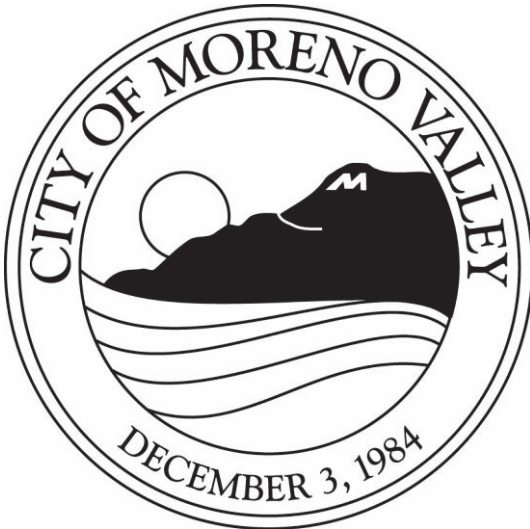
CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Pedestrian Hybrid Beacon on Cactus Avenue at Woodland Park</p> <p>Department / Division: Public Works Department / Transportation Engineering Division</p>		<p>Project Status:</p> <p><input type="checkbox"/> New <input type="checkbox"/> Deleted</p> <p><input type="checkbox"/> In Progress <input type="checkbox"/> On Hold</p> <p><input checked="" type="checkbox"/> Completed</p>		<p>Project Priority in CIP Category:</p> <p><input checked="" type="checkbox"/> Essential (Start within 1 yr)</p> <p><input type="checkbox"/> Necessary (Start within 1 to 3 yrs)</p> <p><input type="checkbox"/> Desirable (Start within 3 to 5 yrs)</p> <p><input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>			
<p>Project Description:</p> <p>Installed a Pedestrian Hybrid Beacon on Cactus Avenue at Woodland Park to accommodate park users crossing Cactus Avenue. Project was on hold pending identification of additional funds for construction cost expected to be approximately \$300,000, which included improvements to the adjacent park.</p> <p>Construction: Completed February 2021</p> <p>Justification or Significance of Improvement:</p> <p>A pedestrian crossing count revealed sufficient park users crossing Cactus Avenue that justified adding control.</p> <p>Estimated Maintenance Costs:</p> <p>Maintenance cost is expected to be similar to a traffic signal, which is approximately \$3,500 per year. The maintenance cost will be absorbed by the existing traffic signal maintenance operating budget.</p>		<p>Project Location Map:</p> 					
		<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>					
		<p>Life-to-Date Expenditures Through FY 2019/2020: 26,079</p>					
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design							
Right of Way	411,590						
Construction							
Other							
PROJECT TOTAL	411,590	0	0	0	0	0	0
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Measure A (2001)							
808 0017-2001	212,496						
SCAG Article 3 (2800)	199,094						
808 0017-2800							
REVENUE TOTAL	411,590	0	0	0	0	0	0

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Dracaea Avenue Neighborhood Greenway Corridor Study</p>		<p>Project Status: <input type="checkbox"/> New <input type="checkbox"/> In Progress <input checked="" type="checkbox"/> Completed <input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>		<p>Project Priority in CIP Category: <input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>																																																																																	
<p>Department / Division: Public Works Department / Transportation Engineering Division</p>		<p>Project Location Map:</p>																																																																																			
<p>Project Description: This project studied Dracaea Avenue from Arbor Park to Nason Street for a potential Neighborhood Greenway. The corridor study was intended to provide traffic calming strategies to enhance the City's Safe Routes to School Program and augment the City's bicycle network.</p> <p>Justification or Significance of Improvement: The project completed a study that could be used for future grant projects relating to Active Transportation. Project was identified in the City's Bicycle Master Plan.</p> <p>Schedule: Develop RFP/ Select Consultant: Completed Complete Corridor Study: Completed</p> <p>Estimated Maintenance Costs: This project is a corridor study only, so no additional maintenance costs will be realized.</p>		<p>Council District(s): <input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>																																																																																			
<p>Life-to-Date Expenditures Through FY 2019/2020: 62,909</p>		<table border="1"> <thead> <tr> <th></th> <th>FY 19/20 - FY 20/21 Budget</th> <th>FY 2021/2022</th> <th>FY 2022/2023</th> <th>FY 2023/2024</th> <th>FY 2024/2025</th> <th>FY 2025/2026 and Beyond</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>PROJECT PHASE</td> <td>Budget FY 2020/2021</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Prelim. Eng. / Environ. Design</td> <td>112,090</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Right of Way Construction</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Other</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>PROJECT TOTAL</td> <td>112,090</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>FUNDING SOURCE</td> <td>Budget FY 2020/2021</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Cap Proj Grants (2301)</td> <td>112,090</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>810 0015-2301</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>REVENUE TOTAL</td> <td>112,090</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> </tbody> </table>					FY 19/20 - FY 20/21 Budget	FY 2021/2022	FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total	PROJECT PHASE	Budget FY 2020/2021							Prelim. Eng. / Environ. Design	112,090							Right of Way Construction								Other								PROJECT TOTAL	112,090	0	0	0	0	0	0	FUNDING SOURCE	Budget FY 2020/2021							Cap Proj Grants (2301)	112,090							810 0015-2301								REVENUE TOTAL	112,090	0	0	0	0	0	0
	FY 19/20 - FY 20/21 Budget	FY 2021/2022	FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total																																																																														
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Prelim. Eng. / Environ. Design	112,090																																																																																				
Right of Way Construction																																																																																					
Other																																																																																					
PROJECT TOTAL	112,090	0	0	0	0	0	0																																																																														
FUNDING SOURCE	Budget FY 2020/2021																																																																																				
Cap Proj Grants (2301)	112,090																																																																																				
810 0015-2301																																																																																					
REVENUE TOTAL	112,090	0	0	0	0	0	0																																																																														

CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond





DELETED PROJECTS

PROPOSED
CAPITAL IMPROVEMENT PLAN

fiscal years 2021/22 & 2022/23



Project Name

Page #

Streets and Highways

Deleted CIP Forms

Public Works HLFV Interchanges	S-14D
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Buildings

Deleted Projects

Improvements at Main Library	B-8D
Senior Center ADA Improvements	B-10D
March Community Center Renovation	B-13D

Parks

Deleted Projects

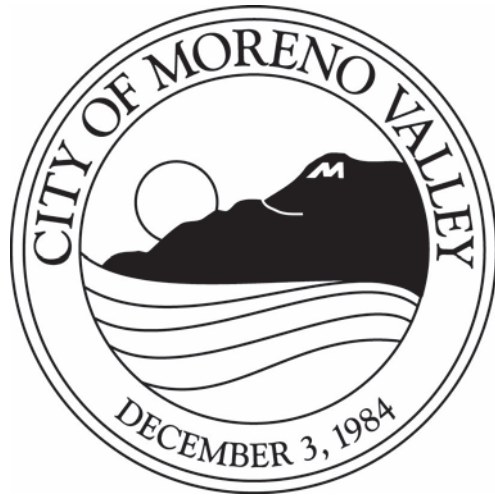
Hidden Springs Park II	P-9D
Aqueduct Bike Trail / Gentian Avenue to Santiago Drive	P-23D
Irrigation Mainline Improvements at Cottonwood Golf Center	P-43D
March Annex Upgrades	P-44D
March Mountain High School Field Lighting	P-48D
Markborough Property Master Plan and Development	P-49D
Moreno Valley Community Park Restroom and Parking Lot Improvements	P-50D
Mountain View Middle School Field Lighting	P-53D
Upgrade Irrigation Controllers in Parks	P-62D

Traffic Signals

Deleted Projects

Transit Signal Priority Integration Phase 1	T-18D
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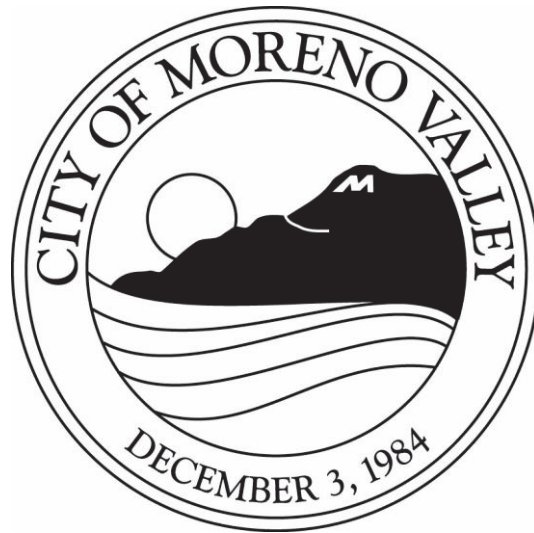
Attachment: Exhibit A - Proposed CIP FYs 2021/22 - 2022/23 (4417 : Capital Improvement Plan Fiscal Years 2021/22 - 2022/23)



CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Public Works HLFV Interchanges</p> <p>Department / Division: Public Works Department / Capital Projects Division</p>	<p>Project Status:</p> <p><input type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input checked="" type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>
<p>Project Description:</p> <p><This form is no longer needed. The scope of work was transferred to another CIP project></p> <p>This project consists of a developer deposit for City staff to assist on interchange studies as needed. Caltrans will require all such work to be approved and processed through the City of Moreno Valley and the County of Riverside prior to submittal to Caltrans for approval. Highland Fairview (HLFV) has provided a funding deposit for City staff to review and/or process any such documentation. New requests for tasks will be on an as-needed basis requested by the developer or the City.</p> <p>Schedule: As needed</p> <p>Justification or Significance of Improvement: Developer deposit provided for City staff assistance on an as-needed basis in coordinating with Caltrans.</p> <p>Estimated Maintenance Costs: Street maintenance is typically funded by Gas Tax and Measure A funds, and costs on average are approximately \$1.40 / square foot for grind and overlay and \$0.30 / square foot for slurry seal. Street maintenance costs over a 20 year period are estimated to average almost \$12,000 per 13 foot wide lane mile per year. Street maintenance funding will be part of the deferred maintenance for the whole network. Caltrans will fund maintenance of the freeway, ramp, and structures.</p>	<p>Project Location Map:</p>	<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input checked="" type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>
<p>Life-to-Date Expenditures Through FY 2019/2020: 70,162</p>		
	<p>Budget</p> <p>FY 2020/2021</p> <p>5,187</p>	
	<p>New Request</p> <p>FY 2021/2022</p> <p>0</p>	
	<p>New Request</p> <p>FY 2022/2023</p> <p>0</p>	
	<p>FY 2023/2024</p> <p>0</p>	
	<p>FY 2024/2025</p> <p>0</p>	
	<p>FY 2025/2026 and Beyond</p> <p>0</p>	
	<p>Total</p> <p>0</p>	
<p>PROJECT TOTAL</p>		
	<p>Budget</p> <p>FY 2020/2021</p> <p>5,187</p>	
	<p>New Request</p> <p>FY 2021/2022</p> <p>0</p>	
	<p>New Request</p> <p>FY 2022/2023</p> <p>0</p>	
	<p>FY 2023/2024</p> <p>0</p>	
	<p>FY 2024/2025</p> <p>0</p>	
	<p>FY 2025/2026 and Beyond</p> <p>0</p>	
	<p>Total</p> <p>0</p>	
<p>FUNDING SOURCE</p>		
801 0037 70 77-1010	<p>Budget</p> <p>FY 2020/2021</p> <p>5,187</p>	
	<p>New Request</p> <p>FY 2021/2022</p> <p>0</p>	
	<p>New Request</p> <p>FY 2022/2023</p> <p>0</p>	
	<p>FY 2023/2024</p> <p>0</p>	
	<p>FY 2024/2025</p> <p>0</p>	
	<p>FY 2025/2026 and Beyond</p> <p>0</p>	
	<p>Total</p> <p>0</p>	
<p>REVENUE TOTAL</p>		
	<p>Budget</p> <p>FY 2020/2021</p> <p>5,187</p>	
	<p>New Request</p> <p>FY 2021/2022</p> <p>0</p>	
	<p>New Request</p> <p>FY 2022/2023</p> <p>0</p>	
	<p>FY 2023/2024</p> <p>0</p>	
	<p>FY 2024/2025</p> <p>0</p>	
	<p>FY 2025/2026 and Beyond</p> <p>0</p>	
	<p>Total</p> <p>0</p>	

CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond



CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Improvements at Main Library</p> <p>Department / Division: Public Works Department / Maintenance & Operations Division</p>	<p>Project Status:</p> <p><input type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input checked="" type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>					
<p>Project Location Map:</p>							
<p>Project Description:</p> <p><The scope of work exceeded the funding. No money was spent. Money is being returned></p> <p>Completion of interior improvements to the Moreno Valley Main Library, including recommended Americans with Disabilities Act (ADA) corrections, improvements to restrooms, lockers, adjustments to counters, partitions, sinks, etc. and site infrastructure improvements.</p> <p>Design: July 2021 to August 2021 Advertise / Award: September 2021 to November 2021 Construction: December 2021</p> <p>Justification or Significance of Improvement: ADA Improvements will improve accessibility and make it possible for those who have disabilities, and are currently unable to access the facility, to utilize and be part of the programs offered.</p> <p>Estimated Maintenance Costs: Annual average building maintenance costs are estimated at approximately \$9/SF. Currently no new funding source has been identified to fund these maintenance costs.</p>							
<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>							
<p>Life-to-Date Expenditures Through FY 2019/2020: 0</p>							
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design	125,000						
Right of Way Construction	325,000						
Other							
PROJECT TOTAL	450,000	0	0	0	0	0	0
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
CDBG (2512)	450,000						
803 0048-2512							
REVENUE TOTAL	450,000	0	0	0	0	0	0

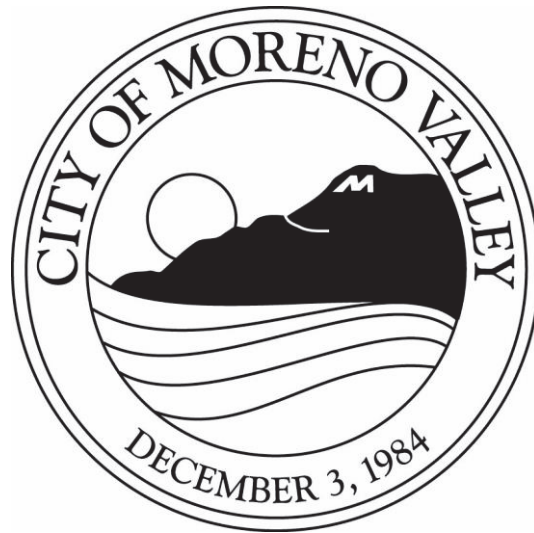
CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Senior Center ADA Improvements</p> <p>Department / Division: Financial & Management Services/Purchasing & Facilities</p>	<p>Project Status:</p> <p><input type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input checked="" type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>						
<p>Project Location Map:</p>								
<p>Project Description: <This project was part of a CDBG application that was rescinded. There are no current projects associated with this location></p> <p>Completion of ADA Improvements, including adjustment of reach ranges and door pressures, handrail corrections, path of travel installation, correction to restroom fixtures, including toilets, dispensers, grab bars, etc.</p> <p>Justification or Significance of Improvement: Completion of the ADA recommended corrections will improve accessibility and make it possible for those who have disabilities, who may currently be unable to access the facility, to utilize and enjoy the services and programs offered.</p> <p>Estimated Maintenance Costs: N/A</p>								
<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>								
<p>Life-to-Date Expenditures Through FY 2019/2020:</p>								
	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total	
PROJECT PHASE Prelim. Eng. / Environ. Design Right of Way Construction Other	0							
PROJECT TOTAL	0	0	0	0	0	0	0	
<p>FUNDING SOURCE CDBG (2512) 803 0040-2512</p>			New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
	0							
REVENUE TOTAL	0	0	0	0	0	0	0	

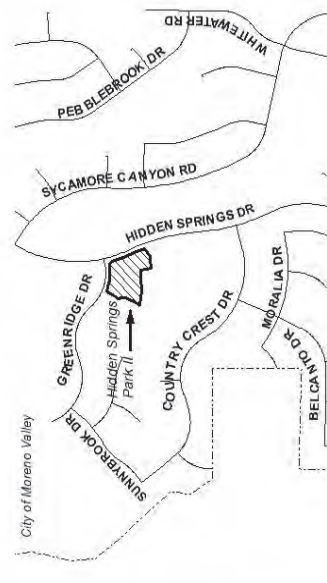
CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: March Community Center Renovation</p> <p>Department / Division: Parks & Community Services Department / Parks Division</p>	<p>Project Status:</p> <p><input type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input checked="" type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>					
<p>Project Location Map:</p>							
<p>Council District(s):</p> <p><input type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>							
<p>Project Description: <Parks & Community Services Department is working with a non-profit to explore other options for this site> Renovate the March Community Center for public and civic uses. Project includes abatement of hazardous material and replacement with new materials. A grant will be pursued for FY 2021/22 to include the addition of new amenities and rooms.</p> <p>Construction: July 2019 to June 2021</p> <p>Justification or Significance of Improvement: Building is over 50 years, and requires renovation.</p> <p>Estimated Maintenance Costs: Annual average building maintenance costs are estimated at approximately \$10.00 / square foot. Although actual maintenance costs may vary, this estimated cost is based on an industry accepted standard maintenance cost. Funding sources also vary, depending on the type of building, but the primary source is Zone A (CFD No. 1 for newer parks).</p>							
<p>Life-to-Date Expenditures Through FY 2019/2020: 75,090</p>							
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other	200,000						
PROJECT TOTAL	200,000	0	0	0	0	0	0
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
PCS Cap Proj (2019) 803 0027-3016	200,000						
REVENUE TOTAL	200,000	0	0	0	0	0	0

CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond



CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Hidden Springs Park II	Project Status: <input type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed <input checked="" type="checkbox"/> Deleted <input type="checkbox"/> On Hold	Project Priority in CIP Category: <input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)						
Department / Division: Parks & Community Services Department / Parks Division								
Project Description: <There is no water service to this site, so construction of a dog park needs to be re-visited for need and feasibility, and will require more research and planning> This project will install a dog park will play/training apparatus and fencing. Construction Completed: FY 17/18 - Picnic tables, benches, staging area Construction: FY 20/21 - Dog park Justification or Significance of Improvement: This park is extensively used by walkers and joggers and dog owners. The addition of amenities to the park will be an enhancement to the area. Estimated Maintenance Costs: Annual park maintenance costs average approximately \$12,000 / acre based on budget information provided by the Parks Maintenance Division. Actual maintenance costs may vary depending on the size and amenities of the site. Parks maintenance is typically funded by Zone A (CDF No. 1 for newer parks).								
Project Location Map: 								
Council District(s): <input type="checkbox"/> District 1 <input checked="" type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4								
Life-to-Date Expenditures Through FY 2019/2020: 76,282								
PROJECT PHASE	Budget FY 2020/2021	FY 19/20 - FY 20/21 Budget	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other								
PROJECT TOTAL	0		0	0	0	0	0	0
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total	
REVENUE TOTAL	0	0	0	0	0	0	0	0

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

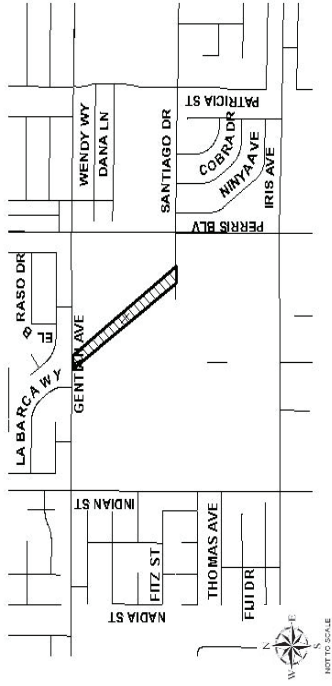
Project Title: Aqueduct Bike Trail / Gentian Avenue to Santiago Drive

Department / Division: Parks & Community Services Department / Parks Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:



Council District(s):

District 1 District 2 District 3 District 4

Project Description:
 <This trail segment is included with Tract 36760 – Legacy Park, currently under construction by Meritage Homes>
 The project involves dedication of land to CSD and installation of bike trail, landscaping, and other improvements within a 100-foot wide aqueduct pipeline easement. The approximate size of this property is 160,000 square feet. The project is to be developer-funded.

Justification or Significance of Improvement:
 The aqueduct bike trail is part of the City's General Plan. The improvements at this site are consistent with the General Plan.

Estimated Maintenance Costs:
 Trail maintenance costs average approximately \$4,000 per acre per year based on budget information provided by the Parks Maintenance Division. Actual maintenance costs may vary depending on the size and amenities of the site. Currently no new funding source has been identified to fund costs associated with future replacements needed due to normal use.

PROJECT PHASE	Budget FY 2018/2019	FY 19/20 - FY 20/21 Budget				Total
		New Request FY 2019/2020	New Request FY 2020/2021	FY 2021/2022	FY 2022/2023	
Prelim. Eng. / Environ. Design Right of Way Construction Other						182,300 182,300 36,500 2,320,700
PROJECT TOTAL	0	0	0	0	0	2,721,800
FUNDING SOURCE	Budget FY 2018/2019	FY 2021/2022 and Beyond				Total
Developer (Parks) UNF (DEV)						2,721,800
REVENUE TOTAL	0	0	0	0	0	2,721,800

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Irrigation Mainline Improvements at Cottonwood Golf Center

Department / Division: Parks & Community Services Department / Parks Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:

<Requested for project to be deleted because it was a duplication>
 Replace irrigation mainline and valve wiring.

Justification or Significance of Improvement:
 The irrigation mainline is original to the golf course. It has had many failures over the years, causing turf failure and staff time for repairs.

Estimated Maintenance Costs:
 Park maintenance costs average approximately \$12,000 per acre per year based on budget information provided by the Parks Maintenance Division. Actual maintenance costs may vary depending on the size and amenities of the site. Currently no new funding source has been identified to fund costs associated with future replacements needed due to normal use.

Council District(s):
 District 1 District 2 District 3 District 4

		FY 19/20 - FY 20/21 Budget					
PROJECT PHASE	Budget FY 2018/2019	New Request FY 2019/2021	New Request FY 2020/2021	FY 2021/2022	FY 2022/2023	FY 2023/2024 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other					425,300		425,300
PROJECT TOTAL	0	0	0	0	425,300	0	425,300
FUNDING SOURCE	Budget FY 2018/2019	New Request FY 2019/2021	New Request FY 2020/2021	FY 2021/2022	FY 2022/2023	FY 2023/2024 and Beyond	Total
Unfunded UNF					425,300		425,300
REVENUE TOTAL	0	0	0	0	425,300	0	425,300

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: March Annex Upgrades

Department / Division: Parks & Community Services Department / Parks Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:

Justification or Significance of Improvement:
 The March Annex building will be revisited at a later date, due to changing priorities for the department > Upgrade March Annex with landscaping, parking lot, and basketball court.

Estimated Maintenance Costs:
 Park maintenance costs average approximately \$12,000 per acre per year based on budget information provided by the Parks Maintenance Division. Actual maintenance costs may vary depending on the size and amenities of the site. Currently no new funding source has been identified to fund costs associated with future replacements needed due to normal use. Parking lot maintenance costs are estimated to average approximately \$2,500 per acre of paved parking lot per year. Currently no new funding source has been identified to fund these maintenance costs.

Council District(s):
 District 1 District 2 District 3 District 4

PROJECT PHASE Prelim. Eng. / Environ. Design Right of Way Construction Other	Budget FY 2018/2019	FY 19/20 - FY 20/21 Budget				Total
		New Request FY 2019/2021	New Request FY 2020/2021	FY 2021/2022	FY 2022/2023	
	0	0	0	0	0	36,500
PROJECT TOTAL	0	0	0	0	0	334,100
FUNDING SOURCE Unfunded UNF						
						370,600
REVENUE TOTAL	0	0	0	0	0	370,600

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: March Mountain High School Field Lighting

Department / Division: Parks & Community Services Department / Parks Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:

Project Description:
<This is not Parks & Community Services property and Parks & Community Services does not have joint-use agreements for school fields>

Install lighting to the existing multi-use field at March Mountain High School.

Justification or Significance of Improvement:
There is a lack of lighted multi-use sports fields and available property to put them on in the City. Utilizing school fields will provide use to both the City's sports groups and the schools.

Estimated Maintenance Costs:
Park maintenance costs average approximately \$12,000 per acre per year based on budget information provided by the Parks Maintenance Division. Actual maintenance costs may vary depending on the size and amenities of the site. Currently no new funding source has been identified to fund costs associated with future replacements needed due to normal use.

Council District(s):
 District 1
 District 2
 District 3
 District 4

PROJECT PHASE	Budget FY 2018/2019	FY 19/20 - FY 20/21 Budget				Total
		New Request FY 2019/2021	New Request FY 2020/2021	FY 2021/2022	FY 2022/2023	
Prelim. Eng. / Environ. Design Right of Way Construction Other						121,500
PROJECT TOTAL	0	0	0	0	0	1,518,800
FUNDING SOURCE	Budget FY 2018/2019	FY 2021/2022				Total
Unfunded UNF						1,640,300
REVENUE TOTAL	0	0	0	0	0	1,640,300

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Markborough Property Master Plan and Development

Department / Division: Parks & Community Services Department / Parks Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:

Project Description:
<The City is selling this property>

The park site known as the Markborough property is located off of Perris Boulevard, east of Canyon Vista Road. This site consists of approximately 44 acres. A master plan and development of the park site may include multiuse trails, sports fields, tot lot, restroom, etc.

Justification or Significance of Improvement:
Due to the growing community and adhering to the General Plan, additional park sites are needed. This park site will provide the community with recreational amenities, while partially fulfilling the City's General Plan for parks.

Estimated Maintenance Costs:
Park maintenance costs average approximately \$12,000 per acre per year based on budget information provided by the Parks Maintenance Division. Actual maintenance costs may vary depending on the size and amenities of the site. Currently no new funding source has been identified to fund costs associated with future replacements needed due to normal use.

Council District(s):
 District 1
 District 2
 District 3
 District 4

PROJECT PHASE	Budget FY 2018/2019	FY 19/20 - FY 20/21 Budget				Total
		New Request FY 2019/2021	New Request FY 2020/2021	FY 2021/2022	FY 2022/2023	
Prelim. Eng. / Environ. Design Right of Way Construction Other					91,100	91,100
PROJECT TOTAL	0	0	0	0	0	91,100
FUNDING SOURCE	Budget FY 2018/2019	FY 2021/2022				Total
Unfunded UNF					91,100	91,100
REVENUE TOTAL	0	0	0	0	0	91,100

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Moreno Valley Community Park Restroom and Parking Lot Improvements</p> <p>Department / Division: Parks & Community Services Department / Parks Division</p>	<p>Project Status:</p> <p><input type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input checked="" type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>					
<p>Project Description: <Requested for project to be deleted because it was a duplication></p> <p>Replacing sewer and waste drains for the restroom building and repave the parking lot at Moreno Valley Community Park.</p> <p>Justification or Significance of Improvement: The plumbing in the park is over 40 years old and is failing in many locations. The paving in the parking lot is also over 40 years old, and has had numerous areas of patching that continues to fail.</p> <p>Estimated Maintenance Costs: Park maintenance costs average approximately \$12,000 per acre per year based on budget information provided by the Parks Maintenance Division. Actual maintenance costs may vary depending on the size and amenities of the site. Currently no new funding source has been identified to fund costs associated with future replacements needed due to normal use.</p>							
<p>Project Location Map:</p>							
<p>Council District(s):</p> <p><input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>							
<p>FY 19/20 - FY 20/21 Budget</p>							
PROJECT PHASE	Budget FY 2018/2019	New Request FY 2019/2021	New Request FY 2020/2021	FY 2021/2022	FY 2022/2023	FY 2023/2024 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other						250,000	250,000
PROJECT TOTAL	0	0	0	0	0	250,000	250,000
FUNDING SOURCE	Budget FY 2018/2019	New Request FY 2019/2021	New Request FY 2020/2021	FY 2021/2022	FY 2022/2023	FY 2023/2024 and Beyond	Total
Unfunded UNF						250,000	250,000
REVENUE TOTAL	0	0	0	0	0	250,000	250,000

CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

Project Title: Mountain View Middle School Field Lighting

Department / Division: Parks & Community Services Department / Parks Division

Project Status:
 New
 In Progress
 Completed
 Deleted
 On Hold

Project Priority in CIP Category:
 Essential (Start within 1 yr)
 Necessary (Start within 1 to 3 yrs)
 Desirable (Start within 3 to 5 yrs)
 Deferrable (Start within 5 to 10 yrs)

Project Location Map:

Project Description:
 <This is not Parks & Community Services property and Parks & Community Services does not have joint-use agreements for school fields>
 Install lighting to the existing multi-use field.

Justification or Significance of Improvement:
 There is a lack of lighted multi-use sports fields and available property to put them on in the City. Utilizing school fields will provide use to both the City's sports groups and the schools.

Estimated Maintenance Costs:
 Park maintenance costs average approximately \$12,000 per acre per year based on budget information provided by the Parks Maintenance Division. Actual maintenance costs may vary depending on the size and amenities of the site. Currently no new funding source has been identified with future replacements needed due to normal use.

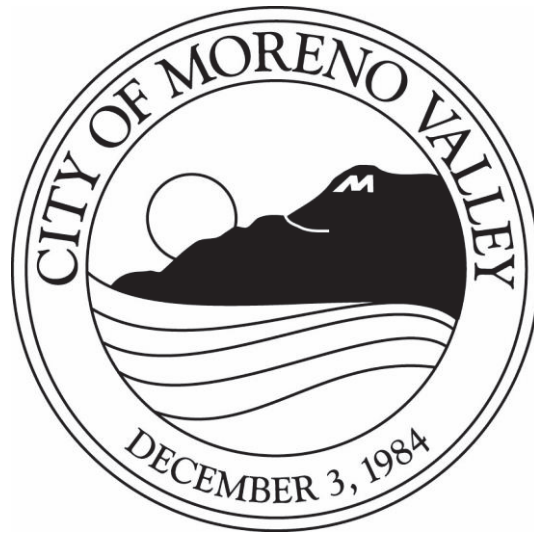
Council District(s):
 District 1
 District 2
 District 3
 District 4

PROJECT PHASE	Budget FY 2018/2019	FY 19/20 - FY 20/21 Budget				Total
		New Request FY 2019/2021	New Request FY 2020/2021	FY 2021/2022	FY 2022/2023	
Prelim. Eng. / Environ. Design Right of Way Construction Other						243,000
PROJECT TOTAL	0	0	0	0	0	2,976,800
FUNDING SOURCE	Budget FY 2018/2019	FY 2021/2022				Total
Unfunded UNF						2,976,800
REVENUE TOTAL	0	0	0	0	0	2,976,800



CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Upgrade Irrigation Controllers In Parks</p> <p>Department / Division: Parks & Community Services Department / Parks Division</p>	<p>Project Status:</p> <p><input type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input type="checkbox"/> Essential (Start within 1 yr) <input checked="" type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>																																										
<p>Project Location Map:</p> <p align="center">CITYWIDE</p>																																												
<p>Project Description:</p> <p><Requested for project to be deleted because it was a duplication></p> <p>Upgrade older irrigation controllers with the Calsense system.</p> <p>Justification or Significance of Improvement:</p> <p>The Calsense system is the standard for MV Parks. It is computerized to sense low/high flows, change programming with the weather, shut down with waterline breaks, manage and reduce water usage.</p> <p>Estimated Maintenance Costs:</p> <p>Park maintenance costs average approximately \$12,000 per acre per year based on budget information provided by the Parks Maintenance Division. Actual maintenance costs may vary depending on the size and amenities of the site. Currently no new funding source has been identified to fund costs associated with future replacements needed due to normal use.</p>																																												
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	New Request FY 2019/2021	New Request FY 2020/2021	FY 2021/2022	FY 2022/2023	FY 2023/2024 and Beyond	Total																																						
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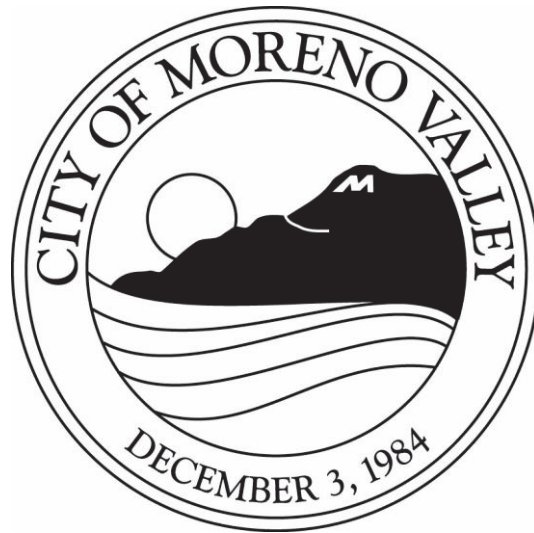
CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond



CITY OF MORENO VALLEY
Capital Improvement Plan - Project Details
FYs 2021-2026 and Beyond

<p>Project Title: Transit Signal Priority Integration Phase 1</p> <p>Department / Division: Public Works Department / Transportation Engineering Division</p> 	<p>Project Status:</p> <p><input type="checkbox"/> New <input type="checkbox"/> In Progress <input type="checkbox"/> Completed</p> <p><input checked="" type="checkbox"/> Deleted <input type="checkbox"/> On Hold</p>	<p>Project Priority in CIP Category:</p> <p><input checked="" type="checkbox"/> Essential (Start within 1 yr) <input type="checkbox"/> Necessary (Start within 1 to 3 yrs) <input type="checkbox"/> Desirable (Start within 3 to 5 yrs) <input type="checkbox"/> Deferrable (Start within 5 to 10 yrs)</p>					
<p>Project Location Map:</p> 							
<p>Project Description:</p> <p><Staff was unable to reach a cost-sharing agreement with Riverside Transit Agency for the work></p> <p>This project would fund integration of the Advanced Traffic Signal Controller (ATSC) type into the City's Transportation Management Center, which will lay the groundwork for a future transit signal priority corridor along Perris Boulevard and Alessandro Boulevard to feed the Metrolink line. The upgrade will also facilitate completion of the ITS Deployment Phase 1B project, which is designed to use the ATSC controller. The work entails software development. The unfunded portion is expected to be funded by a contribution from the Riverside Transit Agency which is currently being negotiated.</p> <p>Contract Issued: Software Upgrade Completion:</p> <p>Justification or Significance of Improvement: This project will improve the mobility by allowing flexibility in allocating traffic signal green time on arterials with transit services.</p> <p>Estimated Maintenance Costs: Maintenance cost related to transit priority is expected to be funded by others.</p>							
<p>Council District(s):</p> <p><input checked="" type="checkbox"/> District 1 <input type="checkbox"/> District 2 <input checked="" type="checkbox"/> District 3 <input type="checkbox"/> District 4</p>							
<p>Life-to-Date Expenditures Through FY 2019/2020: 152</p>							
PROJECT PHASE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Prelim. Eng. / Environ. Design Right of Way Construction Other	32,526						
PROJECT TOTAL	32,526	0	0	0	0	0	0
FUNDING SOURCE	Budget FY 2020/2021	New Request FY 2021/2022	New Request FY 2022/2023	FY 2023/2024	FY 2024/2025	FY 2025/2026 and Beyond	Total
Traffic Mitigation (3004) 808 0031-3004	32,526						
REVENUE TOTAL	32,526	0	0	0	0	0	0

CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond



GLOSSARIES

PROPOSED CAPITAL IMPROVEMENT PLAN

fiscal years 2021/22 & 2022/23

Attachment: Exhibit A - Proposed CIP FYs 2021/22 - 2022/23 (4417 : Capital Improvement Plan Fiscal Years 2021/22 - 2022/23)



Glossary of Abbreviations

AB	Assembly Bill
ADA	Americans with Disabilities Act
ADP	Area Drainage Plan
APN	Assessor's Parcel Number
ATP	Active Transportation Program
BLS	Bureau of Labor Statistics
BSMWC	Box Springs Mutual Water Company
CALTRANS	California Department of Transportation
CAMUTCD	California Manual on Uniform Traffic Control Devices
CAP PROJ	Capital Projects
CCI	Construction Cost Index
CCTV	Closed Circuit Television
CDBG	Community Development Block Grant
CFD	Community Facilities District
CIP	Capital Improvement Plan
CMAQ	Congestion, Mitigation and Air Quality
CONSTR	Construction
COPS	Certificates of Participation
CP	Capital Projects
CPI	Consumer Price Index
CPSC	Consumer Product Safety Commission
DIF	Development Impact Fee
DMS	Dynamic Message Signs
EIR	Environmental Impact Report
DSL	Digital Subscriber Line
EMWD	Eastern Municipal Water District
ENG	Engineering
ENR	Engineering News Record
ENVIRON	Environmental
EV	Electric Vehicle
EVP	Emergency Vehicle Pre-Emption
FHWA	Federal Highway Administration
FTIP	Federal Transportation Improvement Program
FY	Fiscal Year
GASB	Governmental Accounting Standards Board
GEN	General
HBRR	Highway Bridge Replacement and Rehabilitation
HMGP	Highway Mitigation Grant Program
HSIP	Highway Safety Improvement Program
HUD	Housing and Urban Development
ITS	Intelligent Transportation System
JPA	Joint Power Authority
LED	Light Emitting Diode
LMD	Landscape Maintenance District
LRB	Lease Revenue Bond
MARA	Measure A Regional Arterial

MARB	March Air Reserve Base
MDP	Master Drainage Plan
MGMT	Management
MSRC	Mobile Source Air Pollution Reduction Review Committee
MVU	Moreno Valley Utility
MVUSD	Moreno Valley Unified School District
PA&ED	Planning Approvals and Environmental Documents
PCS	Parks & Community Services
PDS	Project Delivery Support
PRELIM	Preliminary
PS&E	Plans, Specifications, and Estimates
PSR	Project Study Report
PVSD	Perris Valley Storm Drain
PW	Public Works
RCFC	Riverside County Flood Control
RCFC&WCD	Riverside County Flood Control and Water Conservation District
RRCMC	Riverside County Regional Medical Center
RCTC	Riverside County Transportation Commission
ROW	Right of Way
SB	Senate Bill
SCADA	Supervisory Control and Data Acquisition
SCAG	Southern California Association of Governments
SCE	Southern California Edison
SLPP	State Local Partnership Program
SR2S	Safe Routes to School (State of California)
SRTS	Safe Routes to School (FHWA)
STPL	State Transportation Program Local
SVCS	Services
TCEP	Trade Corridor Enhancement Program
TECH	Technology
TIP	Transportation Improvement Program
TRIP	Total Road Improvement Program
TUMF	Transportation Uniform Mitigation Fee
WRCOG	Western Regional Council of Governments

Glossary of Funds

- 1010 General Fund**
The General Fund is used to account for all revenues not specifically levied or collected for a dedicated purpose and for expenditures related to general City operations and activities.
- 2000 Gas Tax Fund**
The Gas Tax Fund is used to account for the City's share of state gas tax revenue restricted for street improvement and maintenance. The revenue is apportioned under the State of California Streets and Highway Code based on relative percentage share of the California population. In addition, each city with a population of 100,000 to 500,000 receives \$10,000 annually in the month of July to be used exclusively for the purpose of engineering costs and administrative expenses in respect to city streets. It is generally an operating fund subsidized by the General Fund.
- 2000A Road Maintenance and Rehabilitation Account (Gas Tax) Fund**
The Road Maintenance and Rehabilitation Fund (Senate Bill 1) is used to account for the City's share of increased fuel excise taxes, diesel fuel sales taxes, and vehicle registration taxes. The new taxes were imposed under the Road Repair and Accountability Act of 2017. The allocations must be used on road maintenance and rehabilitation, safety projects, railroad grade separations, traffic control devices, or complete street components.
- 2001 Measure A Fund**
The Measure A Fund is used to account for the receipt and disbursement of the City's share of the countywide half-cent sales tax, specifically allocated for transit-related projects pursuant to a measure passed by the Riverside County voters. Measure A has been a major source of funding for the City's transportation infrastructure improvements.
- 2005 Air Quality Management Fund**
The Air Quality Management Fund is used to account for the City's share of the State AB 2766 funds. The revenue is apportioned to cities by the South Coast Air Quality Management District (SCAQMD) and is restricted for programs to reduce air pollution from mobile sources pursuant to the California Clean Air Act of 1988.
- 2008 Storm Water Management Fund**
This Storm Water Management Fund is used to account for the citywide storm water and non-storm water pollution prevention work conducted to comply with regulations set forth by the Federal Clean Water Act and State Water Resources Control Board.

- 2019 Quimby In-Lieu Park Fees Revenue Fund**
The Quimby In-Lieu Park Fees Revenue Fund is used to account for the collection and transfer of fees in lieu of park land dedication for the purpose of developing new or rehabilitating existing neighborhood parks, community parks, or recreational facilities to serve the subdivision paying the fees, in accordance with the Quimby Act, a 1965 provision in the State Subdivision Map Act for the dedication of park land.
- 2050 CFD No. 2014-01 (Maintenance Services) Fund**
The CFD No. 2014-01 Maintenance Services Fund is used to account for the improvements for and maintenance of certain public improvements associated with Community Facilities District 2014-01.
- 2300 Other Grants Fund**
The Other Grants fund is used to account for the receipt and disbursement of grants for Capital Improvement Plan projects.
- 2301 Capital Projects Grants Fund**
The Capital Projects Grants fund is used to account for the receipt and disbursement of allocated federal, state, and local grants for Capital Improvement Plan projects.
- 2512 Community Development Block Grant (CDBG) Fund**
The CDBG Fund is used to account for the administration of CDBG funds received from the Department of Housing and Urban Development (HUD) that provide funding of Fair Housing Counseling/Tenant Mediation, Code Enforcement services, and funding of certain capital projects.
- 2800 Southern California Association of Governments (SCAG) Article 3 Fund**
The SCAG Article 3 Fund is used to account for the receipt and disbursement of allocated Senate Bill (SB) 821 grant awards restricted for the construction of pedestrian and bikeway projects.
- 2901 Development Impact Fees (DIF) Revenue Fund - Arterial Streets**
The Arterial Streets DIF Revenue Fund is used to account for the restricted fees collected to provide funding for arterial street capital improvements related to the impact of development on various City services.
- 2902 Development Impact Fees (DIF) Revenue Fund - Traffic Signals**
The Traffic Signals DIF Revenue Fund is used to account for the restricted fees collected to provide funding for traffic signal capital improvements related to the impact of development on various City services.
- 2905 Development Impact Fees (DIF) Revenue Fund - Park Improvements**
The Park Improvements DIF Revenue Fund is used to account for parks acquisition and development projects funded by revenues received from developers on a dwelling unit basis.

- 2907 Development Impact Fees (DIF) Revenue Fund – Recreation Center**
The Recreation Center DIF Revenue Fund is used to account for restricted fees collected to provide funding for recreation/ community center improvements, construction, and maintenance related to the impact of development on various City services.
- 2908 Development Impact Fees (DIF) Revenue Fund - Library**
The Library DIF Revenue Fund is used to account for the restricted fees collected to provide funding for library improvements related to the impact of development on various City services.
- 2910 Development Impact Fees (DIF) Revenue Fund - Corporate Yard**
The Corporate Yard DIF Revenue Fund is used to account for the restricted fees collected to provide funding for Corporate Yard improvements related to the impact of development on various City services.
- 2911 Development Impact Fees (DIF) Revenue Fund - Interchange Improvements**
The Interchange Improvements DIF Revenue Fund is used to account for the restricted fees collected to provide funding for interchange improvements related to the impact of development on various City services.
- 3000 Facility Construction Fund**
The Facility Construction Fund is used to account for projects where the revenue funding source does not have a dedicated expenditure fund.
- 3002 Public Works General Capital Projects Fund**
The Public Works General Capital Projects Fund is used to account for all costs associated with cooperative and reimbursement agreements.
- 3003 Transportation Uniform Mitigation Fee (TUMF) Capital Projects Fund**
The TUMF Capital Projects Fund is used to account for the mandatory development impact fee program in Western Riverside County designed to pay for road facilities that are needed to serve new developments. This program, enacted by a two-thirds majority of voters in 2002 was designed to pay for major roads and interchange projects that are needed to serve communities as a result of new development. The Western Riverside Council of Governments (WRCOG) administers the program.
- 3004 Traffic Signal Mitigation Fund**
The Traffic Signal Mitigation Fund is used to mitigate transportation system impacts from new development within and outside the City. Fair Share payments for improvements not covered by either Development Impact Fees (DIF) or Transportation Uniform Mitigation Fee (TUMF) programs.

- 3006 Parks & Community Services Capital Projects Fund**
The Parks & Community Services Capital Projects Fund is used to account for general park and recreation capital projects, the development of new parks and recreation facilities, community parks, neighborhood parks and sports facilities, and for the major renovation of existing parks and facilities.
- 3008 Capital Projects Reimbursements Fund**
The Capital Projects Reimbursements Fund is used to account for the receipt and disbursement of allocated General Fund appropriations for street improvements and maintenance.
- 3015 PCS Capital Project (Park Improvements) Fund**
The Parks & Community Services Capital Project Park Improvements Fund is used to account for general parks and recreation capital projects, the development of new parks and recreation facilities, community parks, neighborhood parks, trails, and sports facilities.
- 3016 PCS Capital Project (Quimby) Fund**
The Parks & Community Services Capital Project Quimby Fund is used to account for general parks and recreation capital projects, developing new parks and recreation facilities, community parks, neighborhood parks, trails, and sports facilities, and for rehabilitating existing parks and facilities.
- 3301 Development Impact Fees (DIF) Arterial Streets Capital Projects Fund**
The DIF Arterial Streets Capital Projects Fund is used to account for construction of arterial streets projects funded by the development impact fee revenues charged to developers.
- 3302 Development Impact Fees (DIF) Traffic Signals Capital Projects Fund**
The DIF Traffic Signals Capital Projects Fund is used to account for construction of traffic signals funded by the development impact fees charged to developers.
- 3311 Development Impact Fees (DIF) Interchange Improvements Capital Projects Fund**
The DIF Interchange Improvements Capital Projects Fund is used to account for construction of interchanges funded by the development impact fees charged to developers.
- 5011 Zone A Parks Fund**
Zone A provides funding for the operation and maintenance of parkland, linear parkway sites, improved multi-use trails, facilities, and recreational programs throughout the City.
- 5013 Zone E Extensive Landscape Fund**
The Zone E Extensive Landscape Fund is used to account for the improvements for and maintenance of certain public landscaped parkways, open space, and medians within Zone E.

- 5014 LMD 2014-02 Landscape Maintenance District Fund**
The LMD 2014-02 Landscape Maintenance District Fund is used to account for improvements for and maintenance of certain public landscape improvements within Landscape Maintenance District 2014-02.
- 5111 Zone D Standard Landscape Fund**
The Zone D Standard Landscape Fund is used to account for the improvements for and maintenance of certain public parkway and median landscape improvements within Zone D.
- 5112 Zone M Median Maintenance Fund**
The Zone M Median Maintenance Fund is used to account for the improvements for and maintenance of certain public landscape medians within Zone M.
- 5113 CFD No. 1 Fund**
Community Facilities District (CFD) No. 1 is used for the maintenance of new park facilities constructed after the formation of CFD No. 1 in 2003.
- 5114 Zone S Sunnymeade Boulevard Maintenance Fund**
The Zone S Sunnymeade Boulevard Maintenance Fund is used to account for the improvements for and maintenance of certain public parkway and median landscape improvements within Zone S.
- 6011 Electric – Restricted Assets Fund**
The Electric Restricted Asset fund is used to account for the capital assets and construction cost of projects funded by the City's Electric Utility Fund.
- 7220 Technology Services Asset Fund**
The Technology Services Asset Fund is used to account for the operations and capital projects relative to the maintenance, security, and support of the City's information systems backbone including computer, radio, and telephone systems.
- 7320 Facilities Maintenance Asset Fund**
The Facilities Maintenance Asset Fund is used to account for the operations and capital projects relative to the maintenance, repair, modification, modernization, and revitalization of City-controlled facilities and buildings.
- 7330 Facilities Replacement Reserve Fund**
The Facilities Replacement Reserve Fund is used to account for the operations and capital projects relative to the rehabilitation and replacement of City controlled facilities and buildings.
- 7510 Equipment Replacement Reserve Fund**
The Equipment Replacement Fund is used to account for the operations and capital projects relative to the rehabilitation and replacement of City-owned equipment.

UNF

Unfunded Projects

Unfunded Projects are programmed projects for future years that do not yet have a specific funding source identified.

Glossary of Terms

Accounting

The systematic and comprehensive process of identifying, recording, measuring, classifying, verifying, summarizing, interpreting, and communicating financial information. It includes not only the maintenance of financial records, but also the preparation of financial and economic information relating to the organization. Accounting also provides information regarding available resources, the means employed to finance those resources, and the results achieved through their use.

Accrual Basis of Accounting

The basis of accounting by which revenues are recorded when earned and expenditures are recorded when the liability is incurred.

Allocation

The portion of a budget apportioned to a division or department within an organization.

Appropriation

A specific amount of money authorized by the City Council for an approved work program or individual project.

Asset

An economic resource that is owned or controlled to produce value. Capital projects are tangible assets that have a physical substance.

Balanced Budget

A budget in which planned expenditures do not exceed planned funds available.

Basis of Budgeting

Budgets are adopted on a basis consistent with accounting principles generally accepted in the United States of America. Annual appropriated CIP project budgets are adopted for all departments within the general, special revenue, and capital projects funds.

Beginning/Ending Fund Balance

Unencumbered resources available in a fund from the prior/current year after payment of the prior/current year expenses.

Bond

A certificate of debt issued by an entity, guaranteeing payment of the original investment, plus interest, by a specified future date.

Budget

An annual financial plan that identifies revenues, types and levels of services to be provided, and the amount of funds that can be spent.

Budget Calendar

The schedule of key dates or milestones which the City follows in the preparation and adoption of the budget.

Build-Out

An urban planner's estimate of the amount and location of potential development for an area. An area that has been developed to the maximum extent possible or allowable by law.

Capital Expenditures

Expenditures are usually related to major construction projects such as roads, buildings, and parks. These expenditures are typically capitalized and depreciated over time.

Capital Improvement Plan

A multi-year financial plan which identifies proposed construction of physical assets, such as park, street, and recreational facilities, and provides a planning schedule and identifies options for financing the plan.

Capital Project

A project that helps maintain or improve a City asset, often called infrastructure. Capital projects are any major projects requiring the expenditure of public funds (over and above operation expenditures) for the purchase, construction, or replacement of the physical assets of the community. Long-term investment requiring relatively large sums to acquire, develop, improve, and/or maintain a capital asset (such as land, buildings, roads, technology infrastructure).

Contingency

An appropriation of funds to cover unforeseen events that occur during the fiscal year, such as federal mandates, shortfalls in revenue, construction costs, and similar eventualities.

Contract

A written agreement, enforceable by law, between two or more people or entities.

Department

An organizational unit comprised of programs or divisions. Examples include the Public Works Department, Parks and Community Services Department, and Finance Department.

Encumbrance

A legal obligation to expend funds for an expenditure that has not yet occurred. Encumbrances restrict a portion of the applicable appropriation for a specific purchase.

Engineering

The branch of science and technology concerned with the design, building, and use of structures, engines, and machines.

Expenditure

The actual spending of funds for identified goods and services that decreases net spendable resources and are authorized by appropriations.

Fee

A general term used for any charge levied by government for providing a service or performing an activity.

Fiscal Year

A twelve-month period of time designated as the budget year. The City of Moreno Valley's fiscal year is July 1 to June 30.

Fund

A self-balancing group of accounts recording cash and other financial resources, as well as related liabilities and residual equity. Funds are segregated to carry on specific activities or objectives in accordance with special regulations, restrictions or limitations as established by the State and Federal governments.

Fund Balance

Fund Balance reflects the difference between revenues and expenditures, as well as interfund transfers within an adopted fund. Beginning Fund balance is the accumulation of previous year's differences.

General Plan

The City's General Plan provides a guide to growth and land development in the community for both the current period and the long term. The General Plan is the foundation for establishing goals, purposes, zoning, and activities allowed on each land parcel to provide compatibility and continuity to the entire community as well as each individual neighborhood.

Generally Accepted Accounting Principles (GAAP)

Uniform minimum standards and guidelines for accounting and reporting that have been established by the accounting profession through the Governmental Accounting Standards Board (GASB).

Governmental Accounting Standards Board (GASB)

The Governmental Accounting Standards Board (GASB) was organized in 1984 by the Financial Accounting Foundation (FAF) to establish standards of financial accounting and reporting for state and local governmental entities. Its standards guide the preparation of external financial reports of those entities.

Grant

Contributions of cash or other assets from a governmental agency or organization to be used or expended for a specific purpose, activity, or facility.

Infrastructure

Facilities that support the daily life and growth of the City. The basic equipment and structures needed for an organization to function properly such as streets, bridges, drainage, and traffic signals.

Internal Control

A system of checks and balances, including a separation of duties, to ensure accountability standards. An accounting procedure or system designed to promote efficiency, implement a policy, safeguard assets, or avoid fraud and error, etc.

Operating Budget

The annual appropriation of funds for ongoing costs, which include salaries, benefits, maintenance, operation, and capital outlay items.

Pay-As-You-Go

The practice of funding expenditures with current funds rather than borrowing.

Program

Represents major areas or support functions defined as a service provided to citizens, other departments, or other agencies.

Projection

Represents the most recent estimate for current year revenue and expenditures. Projections are based upon several months of actual expenditure and revenue and consider the impact of unanticipated price or other economic factors.

Proposed Budget

A balanced budget presented to the City Council by the City Manager. Any City Council changes to the proposed budget are incorporated into the final adopted budget.

Revenue

Funds received from the collection of taxes, fees, permits, licenses, interest, and grants during the fiscal year.

Schedule

A summary of expenditures, revenues, positions, or other data that reflects funding sources and spending plans of the budget and capital improvement programs.

Transfers

Authorized exchanges of money, positions, or other resources between organizational units or funds.



INDEX

PROPOSED
CAPITAL IMPROVEMENT PLAN

fiscal years 2021/22 & 2022/23

Attachment: Exhibit A - Proposed CIP FYs 2021/22 - 2022/23 (4417 : Capital Improvement Plan Fiscal Years 2021/22 - 2022/23)



**CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond**

b

Index by Project Name
(for Funded and Partially Funded Projects)

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**CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond**

b

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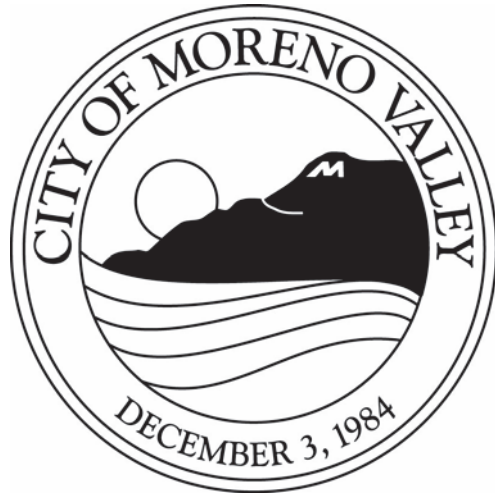
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CITY OF MORENO VALLEY
Capital Improvement Plan
FYs 2021-2026 and Beyond

b

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Attachment: Exhibit A - Proposed CIP FYs 2021/22 - 2022/23 (4417 : Capital Improvement Plan Fiscal Years 2021/22 - 2022/23)



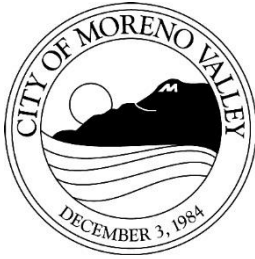




PROPOSED
CAPITAL IMPROVEMENT PLAN
fiscal years 2021/22 & 2022/23

PREPARED BY THE PUBLIC WORKS DEPARTMENT
14177 Frederick Street Moreno Valley, CA 92552-0805
951.413.3130 | moval.org

Attachment: Exhibit A - Proposed CIP FYs 2021/22 - 2022/23 (4417 : Capital Improvement Plan Fiscal Years 2021/22 - 2022/23)



PLANNING COMMISSION

STAFF REPORT

Meeting Date: May 13, 2021

A MASTER PLOT PLAN FOR THE FARM MARKET EXPANSION PROJECT TO INCLUDE DEVELOPMENT OF A NEW 3,850 SQUARE FOOT MULTI-TENANT RETAIL BUILDING (PLOT PLAN), AND A VEHICLE SERVICE STATION (CONDITIONAL USE PERMIT) ON THE EXISTING FARM MARKET SITE LOCATED AT THE SOUTHEAST CORNER OF REDLANDS BOULEVARD AND ALESSANDRO BOULEVARD.

Case: PEN19-0057 – Master Plot Plan
 PEN19-0058 – Plot Plan
 PEN19-0059 – Conditional Use Permit

Applicant: Parmjit Singh

Property Owner: Parmjit Singh

Representative: Brian Lowell

Location: 14058 Redlands Boulevard (southeast corner Redlands Blvd. and Alessandro Blvd.)

Case Planner: Jeff Bradshaw

Council District: 3

Proposal: The Applicant is requesting approval of the following entitlements for a 2.6 acre site: 1) Master Plot Plan for the expansion of the existing Farm Market site to include a new multi-tenant retail building and vehicle service station with 4 fuel pumps and 8 fueling stations; 2) Plot Plan for the building of a new 3,850 square foot multi-tenant retail development which is intended to provide space for a restaurant and a retail store; and 3) a Conditional Use Permit for a new vehicle service station use.

SUMMARY

The Applicant, Parmjit Singh, is requesting approval of the following applications: 1) Master Plot Plan (PEN19-0057) for the expansion of the Farm Market site to include a new multi-tenant retail building and vehicle service station with 4 fuel pumps and 8 fueling stations; 2) Plot Plan (PEN19-0058) for the building of a new 3,850 square foot multi-tenant retail building which is intended to provide space for a restaurant and a retail store; and 3) a Conditional Use Permit (PEN19-0059) for a new vehicle service station use, all on property located at the southeast corner of Redlands Boulevard and Alessandro Boulevard within the Village Commercial (VC) zone.

PROJECT DESCRIPTION

Background

Plot Plan PA06-0173 for the existing 4,876 square foot Farm Market building was approved by the Planning Commission on January 28, 2010. A separate conditional use permit application was approved by the Planning Commission for a wireless telecommunications facility located within the project site.

Project

The Project consists of a Master Plot Plan, Plot Plan, and Conditional Use Permit

Master Plot Plan

The Master Plot Plan is proposed for the expansion of the existing Farm Market. The expansion includes development of a commercial center that will add a 3,850 square foot multi-tenant retail building, vehicle fuel canopy with four pumps (8 stations) (operated out of the Farm Market), common access, parking and storm water / water quality treatment amenities.

Plot Plan

A Plot Plan for the architectural review of the proposed 3,850 square foot multi-tenant retail building. As described further below, the proposed building has been designed to be consistent with the existing Farm Market building and historic architectural requirements of the Village Commercial (VC) zone. This building is intended to provide space for a restaurant and a retail store.

Conditional Use Permits

The Municipal Code allows vehicle service stations in the Village Commercial (VC) zone with the approval of a Conditional Use Permit when located within 300 feet of existing residences or a residential zone.

The vehicle service station will be operated from the existing Farm Market and will include a vehicle fuel canopy with four pumps (8 stations) located northerly of the store

in close proximity to the intersection of Redlands Boulevard and Alessandro Boulevard. This location was chosen in part to separate it from the existing residential uses adjacent to the site. A Conditional Use Permit allows the City to impose special development requirements to ensure that certain uses will not be detrimental to a project's surrounding properties.

The following summarizes the Project's design elements that are intended to minimize impacts on nearby residential uses.

- The canopy for the fueling station will be situated more than 100 feet from all adjacent properties either zoned or developed with residential uses.
- The existing trash enclosure will be located in the interior of the site approximately 100 feet away from all residential uses. The Municipal Code, however, only requires that trash enclosures be located a minimum of 45 feet from any residential structure.

Site/Surrounding Area

The approximately 2.04 acre site is located at the southeast corner of Redlands Boulevard and Alessandro Boulevard and extends southerly to Kimberly Avenue.

The surrounding area includes existing single family homes to the south and east on property zoned Residential 3 (R3), existing single family homes, a convenience store and fuel island. There is undeveloped land to the north on properties zoned either Village Commercial (VC) or Residential 3 (R3), and a United States Post Office and undeveloped property to the west which is also zoned either Village Commercial (VC) or Residential 3 (R3).

Access/Parking

The Project will have two points of access, which includes the existing driveway on Redlands Boulevard and a relocated driveway on Alessandro Boulevard. There will be no vehicular access from Kimberly Avenue.

The Project as designed provides 52 parking stalls which meets the Municipal Code requirements for the combination of retail, restaurant and vehicle service station uses proposed for the site.

Redlands Boulevard and Alessandro Boulevard Improvements

The intersection of Redlands Boulevard and Alessandro Boulevard as constructed is not in alignment with the ultimate right-of-way as set forth in the current General Plan Circulation Element. This mis-alignment is noted along Alessandro Boulevard from approximately Wilmot Street to Merwin Street.

An alignment study to determine the location of ultimate centerline and ultimate right-of-way along the site's Redlands Boulevard and Alessandro Boulevard frontages was prepared for this Project. It was determined through this study that the existing

improvements along Redlands Boulevard are located entirely east of the centerline and the existing improvements along Alessandro Boulevard are located entirely north of the centerline.

Due to the existing alignment of the Redlands Boulevard and Alessandro Boulevard frontages, the Project was not conditioned to construct typical public improvements such as curb, gutter, sidewalks or streetlights along these streets. However, the Project was conditioned to extend the public improvements along Kimberly Avenue from the existing Farm Market frontage eastward across the frontage of the vacant parcel that is the site for the new multi-tenant building.

Design/Landscaping

The proposed architectural theme of the multi-tenant retail building has been designed to be consistent with the architecture of the original market building including the incorporation of board and batten wood siding, river rock accents, multi-pane windows, and a covered walkway with a cupola. The Applicant designed the building to match the existing Farm Market building in order to be consistent with the historic architectural requirements of the Village Commercial (VC) zone.

The Project has been designed to meet and exceed the required design and landscape standards and objectives set forth in the Municipal Code. The landscape elements of the Project include an enhanced landscape setback areas along Redlands Boulevard, Alessandro Boulevard, and Kimberly Avenue, as well as, adjacent to the new building. Additionally, the area between the edge of pavement and the ultimate right-of-way along the site's Alessandro Boulevard frontage will be landscaped and maintained by the owner.

ENVIRONMENTAL

A Mitigated Negative Declaration was prepared by ELMT Consulting in compliance with the California Environmental Quality Act (CEQA) Guidelines. The Mitigated Negative Declaration examined the potential of the proposed Project impacts on the environment. The Mitigation Negative Declaration provides information in support of the finding that a Mitigated Negative Declaration serves as the appropriate CEQA documentation for the proposed Project in that the proposed Project, with the implementation of the proposed mitigation measures, will not have a significant effect on the environment. Technical studies prepared in support of the IS/MND include the following: Air Quality / Greenhouse Gas Analysis, Biological Assessment, Cultural Resource Assessment, Energy Study, Geotechnical Study, Hydrology Study, Noise Study, Traffic Impact Analysis, and Vehicle Miles Traveled memorandum. The electronic files for the Mitigated Negative Declaration with appendices are attached to this staff report. Anyone wishing to view the documents can also do so at City Hall.

Mitigation measures are recommended for the proposed Project in the following areas: Biological Resources, Geological Resource, and Cultural Resources, all of which are incorporated into the Mitigation Monitoring and Report Program. Based on the Initial

Study, and the proposed mitigation measures, the Project will not cause any significant impacts or environmental damage.

The Public Comment Period for the Notice of Availability for the Mitigated Negative Declaration began on April 23, 2021 and ends on May 13, 2021, which satisfies the required 20-day review period. As of the preparation of this staff report, no comments have been received. Should comments regarding the Project be received prior to the Planning Commission they will be provided at or prior to the public hearing.

REVIEW PROCESS

The Applicant submitted the Project application on February 20, 2019. The Project has been considered by all appropriate agencies within and outside of the City, which part of the standard review process with these types of development applications. The Project was reviewed by the Project Review Staff Committee as required by the Municipal Code. Following subsequent revisions and reviews by staff, the Project was determined to be complete with a recommendation to approve the Project as designed and conditioned.

NOTIFICATION

Public notice was sent to all property owners of record within 600 feet of the project on April 29, 2021. The public hearing notice for this project was also posted on the project site and published in the local newspaper on April 23, 2021.

REVIEW AGENCY COMMENTS

The project application materials were circulated for review by all appropriate City departments and divisions as well as applicable outside agencies.

STAFF RECOMMENDATION

Staff recommends that the Planning Commission take the following actions:

- a. That the Planning Commission **ADOPT** Resolution No. 2021-15, and thereby:
 1. **APPROVE** the Initial Study/Mitigated Negative Declaration prepared for Master Plot Plan PEN19-0057, Plot Plan PEN19-0058 and Conditional Use Permit PEN19-0059 on file with the Community Development Department, incorporated herein by this reference, which was completed in compliance with CEQA and the CEQA Guidelines, and reflects that the Planning Commission reviewed and considered the information contained in the Mitigated Negative Declaration, and exercised its independent judgment and analysis of the proposed Project's potential environmental impacts; and
 2. **ADOPT** the Mitigation Monitoring and Reporting Program prepared for the Project, which consists of Master Plot Plan PEN19-0057, Plot Plan

PEN19-0058, and Conditional Use Permit PEN19-0059 pursuant to CEQA and the CEQA Guidelines.

b. That the Planning Commission **ADOPT** Resolution No. 2021-16, and thereby:

1. **APPROVE** PEN19-0057 Master Plot Plan based on the Recitals, Evidence contained in the Administrative Record and Findings as set forth in Resolution No. 2021-16.

c. That the Planning Commission **ADOPT** Resolution No. 2021-17, and thereby:

1. **APPROVE** PEN19-0058 Plot Plan based on the Recitals, Evidence contained in the Administrative Record and Findings as set forth in Resolution No. 2021-17.

d. That the Planning Commission **ADOPT** Resolution No. 2021-18, and thereby:

1. **APPROVE** PEN19-0059 Conditional Use Permit based on the Recitals, Evidence contained in the Administrative Record and Findings as set forth in Resolution No. 2021-18.

Prepared by:
Jeffrey Bradshaw
Associate Planner

Approved by:
Patty Nevins
Planning Official

ATTACHMENTS

1. Resolution 2021-15 - MND
2. Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP
3. Appendices A - E to Exhibit A to Resolution 2021-15
4. Appendix F to Exhibit A to Resolution 2021-15
5. Appendices G - H to Exhibit A to Resolution 2021-15
6. Exhibit B to Resolution 2021-15 - Public Notice
7. Resolution 2021-16 - Master Plot Plan
8. Exhibit A to Resolution 2021-16 - Conditions of Approval
9. Resolution 2021-17 - Plot Plan
10. Exhibit A to Resolution 2021-17 - Conditions of Approval
11. Resolution 2021-18 - Conditional Use Permit
12. Exhibit A to Resolution 2021-18 - Conditions of Approval
13. Project Plans
14. Aerial Map
15. Public Hearing Notice
16. Radius Map

RESOLUTION NUMBER 2021-15

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF MORENO VALLEY, CALIFORNIA, ADOPTING A MITIGATED NEGATIVE DECLARATION AND MITIGATION MONITORING AND REPORTING PROGRAM FOR THE FARM MARKET EXPANSION PROJECT LOCATED AT THE SOUTHEAST CORNER OF REDLANDS BOULEVARD AND ALESSANDRO BOULEVARD (APN'S: 478-030-029, -030, AND -031)

WHEREAS, the City of Moreno Valley (“City”) is a general law city and a municipal corporation of the State of California, and the lead agency for the preparation and consideration of environmental documents for local projects that are subject to requirements of the California Environmental Quality Act (CEQA¹) and CEQA Guidelines²; and

WHEREAS, Parmjit Singh, (“Developer”) is seeking approval of 1) Master Plot Plan (PEN19-0057) for the expansion of the existing Farm Market site to include a new multi-tenant retail building and vehicle service station with 4 fuel pumps and 8 fueling stations; 2) Plot Plan (PEN19-0058) for a new multi-tenant retail building which is intended to provide space for a restaurant and a retail store and; 3) a Conditional Use Permit (PEN19-0059) for a new vehicle service station use, all located at the southeast corner of Redlands Boulevard and Alessandro Boulevard; and

WHEREAS, Planning Division staff completed an environmental assessment for the proposed Project, and, based on the assessment, decided to prepare an Initial Study (“IS”) and a Mitigated Negative Declaration (“MND”) in accordance with Section 6 (ND Procedures) of the City’s Rules and Procedures for the Implementation of the California Environmental Quality Act and the requirements of the CEQA Guidelines Sections 15070 – 15075; and

WHEREAS, a Notice of Intent to Adopt a Mitigated Negative Declaration was duly noticed and circulated for public review for a period of 20 days commencing on April 23, 2021, through May 13, 2021; and

WHEREAS, in conformance with CEQA and the CEQA Guidelines, a Mitigation Monitoring and Reporting Program (“MMRP”) that includes a program for reporting on and monitoring Project mitigation measures was prepared for the proposed Project and circulated with the Mitigated Negative Declaration; and

WHEREAS, on May 13, 2020 a hearing was conducted by the Planning Commission to approve the Mitigated Negative Declaration and the Mitigation Monitoring and Reporting Program and approve the proposed Project; and

¹ Public Resources Code §§ 21000-21177

² 14 California Code of Regulations §§15000-15387

WHEREAS, at the conclusion of the public hearing, in the exercise of its own independent judgment, the Planning Commission determined that the Mitigated Negative Declaration and the Mitigation Monitoring and Reporting Program would reduce the environmental impacts of the Project to levels of insignificance and that there is no substantial evidence supporting a fair argument that the Project will have a significant effect on the environment.

NOW, THEREFORE, THE PLANNING COMMISSION OF THE CITY OF MORENO VALLEY, CALIFORNIA, DOES HEREBY RESOLVE AS FOLLOWS:

Section 1. Recitals and Exhibits

That the foregoing Recitals and attached exhibits are true and correct and are hereby incorporated by this reference.

Section 2. Evidence

That the Planning Commission has considered all of the evidence submitted into the Administrative Record for the Mitigated Negative Declaration and Mitigation Monitoring Plan, including, but not limited to, the following:

- (a) City's Rules and Procedures for the Implementation of the California Environmental Quality Act;
- (b) Initial Study (IS);
- (c) Mitigated Negative Declaration inclusive of the Mitigation Monitoring and Reporting Program prepared for the proposed Project, attached hereto as Exhibit A;
- (d) Notice of Intent to Adopt a Mitigated Negative Declaration/Newspaper Notice, attached hereto as Exhibit B;
- (e) Staff Report prepared for the Planning Commission's consideration and all documents, records and references related thereto, and Staff's presentation at the public hearing; and
- (f) Testimony, comments and correspondence from all persons that were provided at, or prior to, the public hearing.

Section 3. Findings

That based on the content of the foregoing Recitals and the Evidence contained in the Administrative Record as set forth above, the Planning Commission makes the following findings:

- (a) That the City has independently reviewed, analyzed, and considered the Mitigated Negative Declaration and Mitigation Monitoring and Reporting Program, and the entirety of the Administrative record, including without limitation, the Initial Study and comments received;
- (b) That the proposed mitigation measures will reduce all environmental impacts of the proposed Project to levels of insignificance and there is no substantial evidence supporting a fair argument that the Project will have a significant effect on the environment;

- (c) That the Mitigated Negative Declaration and Mitigation Monitoring and Reporting Program have been completed in compliance with CEQA and the CEQA Guidelines consistent the City's Rules and Procedures for the Implementation of the California Environmental Quality Act.
- (d) That the Mitigated Negative Declaration and Mitigation Monitoring and Reporting Program reflect the independent judgment and analysis of the City as lead agency for the proposed Project; and
- (e) That the Mitigated Negative Declaration and Mitigation Monitoring and Reporting Program are adequate to serve as the required CEQA environmental documentation for the proposed Project.

Section 4. Adoption

That based on the foregoing Recitals, Evidence contained in the Administrative Record and Findings, as set forth herein, the Planning Commission hereby adopts the Mitigated Negative Declaration/Initial Study and Mitigation Monitoring and Reporting Program attached hereto as Exhibit A.

Section 5. Repeal of Conflicting Provisions

That all the provisions as heretofore adopted by the Planning Commission that are in conflict with the provisions of this Resolution are hereby repealed.

Section 6. Severability

That the Planning Commission declares that, should any provision, section, paragraph, sentence or word of this Resolution be rendered or declared invalid by any final court action in a court of competent jurisdiction or by reason of any preemptive legislation, the remaining provisions, sections, paragraphs, sentences or words of this Resolution as hereby adopted shall remain in full force and effect.

Section 7. Effective Date

That this Resolution shall take effect immediately upon the date of adoption.

Section 8. Certification

That the Secretary of the Planning Commission shall certify to the passage of this Resolution.

PASSED AND ADOPTED THIS _____ day of _____, 2021.

CITY OF MORENO VALLEY
PLANNING COMMISSION

Patricia Korzec, Chairperson

Attachment: Resolution 2021-15 - MND [Revision 3] (4405 : FARM MARKET EXPANSION)

ATTEST:

Patty Nevins
Planning Official

APPROVED AS TO FORM:

Steven B. Quintanilla
Interim City Attorney

Exhibits:

Exhibit A: Mitigated Negative Declaration

Exhibit B: Notice of Intent to Adopt a Mitigated Negative Declaration/Newspaper Notice

Attachment: Resolution 2021-15 - MND [Revision 3] (4405 : FARM MARKET EXPANSION)

Exhibit A

MITIGATED NEGATIVE DECLARATION

Attachment: Resolution 2021-15 - MND [Revision 3] (4405 : FARM MARKET EXPANSION)

Exhibit B

**NOTICE OF INTENT TO ADOPT A MITIGATED NEGATIVE DECLARATION/NEWSPAPER
NOTICE**

Attachment: Resolution 2021-15 - MND [Revision 3] (4405 : FARM MARKET EXPANSION)



CITY OF MORENO VALLEY

1.b

MITIGATED NEGATIVE DECLARATION / INITIAL STUDY / MITIGATION MONITORING AND REPORTING PROGRAM FOR FARM MARKET EXPANSION

PEN19-0057 – Master Plot Plan
PEN19-0058 – Plot Plan
PEN19-0059 – Conditional Use Permit

April 23, 2021

Lead Agency
CITY OF MORENO VALLEY
14177 Frederick Street
Moreno Valley, CA 92552

Prepared By
ELMT
Julie Gilbert
2201 N. Grand Avenue #10098
Santa Ana, CA 92711

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)



MITIGATED NEGATIVE DECLARATION [FARM MARKET EXPANSION]

Project Description:

Applicant is requesting approval of a Master Plot Plan to expand an existing neighborhood market and creating a commercial center by adding a 2,580 square foot multi-tenant building, with retail and restaurant uses, and a vehicle fueling station.

Project Location:

14058 Redlands Boulevard (southeast corner Alessandro Boulevard and Redlands Boulevard)

Project Proponent:

Parmjit Singh

Findings:

It is hereby determined that, based on the information contained in the attached Initial Study and with the implementation of mitigation measures, the project would not have a significant adverse effect on the environment.

Mitigation Measures:

No.	Mitigation Measure
BIO-1	Pre-construction clearance survey for nesting birds
CUL-1	Monitoring for cultural resources during construction
GEO-1	Monitoring for paleontological resources during construction

Attachments:

1. Location Map
2. Initial Study
3. Mitigation Monitoring and Reporting Program.

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)



Farm Market Expansion



Legend

- Public Facilities
 - Public Facilities
 - ★ Fire Stations
- Road Labels
- City Boundary
- Sphere of Influence

Image Source: Nearmap

Notes

Assessor's Parcel Numbers:
478-030-029, -030, and -031

315.5 0 157.74 315.5 Feet

WGS_1984_Web_Mercator_Auxiliary_Sphere

Print Date: 4/26/2021

DISCLAIMER: The information shown on this map was compiled from the City of Moreno Valley GIS and Riverside County GIS. The land base and facility information on this map is for display purposes only and should not be relied upon without independent verification as to its accuracy. Riverside County and City of Moreno Valley will not be held responsible for any claims, losses or damages resulting from the use of this map.

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)



CITY OF MORENO VALLEY

INITIAL STUDY FOR FARM MARKET PLAZA



Farm Market Plaza
PEN19-0057 – Master Plot Plan
PEN19-0058 – Plot Plan new retail building
PEN19-0059 – Conditional Use Permit for a service station
PEN19-0060 – CEQA Review

April 15, 2021

Lead Agency
CITY OF MORENO VALLEY
 14177 Frederick Street
 Moreno Valley, CA 92552

Prepared By
ELMT Consulting
 Julie Gilbert
 2201 N. Grand Avenue #10098
 Santa Ana, CA 92711

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- Appendix B Biological Resources and MSHCP Compliance
- Appendix C Cultural and Paleontological Report
- Appendix D Energy Analysis
- Appendix E Geotechnical Analysis
- Appendix F Hydrology Analysis and Water Quality Management Plan
- Appendix G Noise Impact Study
- Appendix H-1 Traffic Impact Study
- Appendix H-2 Redlands Boulevard and Alessandro Boulevard Intersection Review
- Appendix H-3 Vehicle Miles Traveled (VMT) Analysis



INITIAL STUDY (IS) FOR FARM MARKET PLAZA

BACKGROUND INFORMATION AND PROJECT DESCRIPTION:

1. **Project Case Number(s):** PEN19-0057 – Master Plot Plan
PEN19-0058 – Plot Plan new retail building
PEN19-0059 – Conditional Use Permit (service station)
PEN19-0060 – CEQA Review
2. **Project Title:** Farm Market Plaza
3. **Public Comment Period:** April 23, 2021 through May 13, 2021
4. **Lead Agency:** City of Moreno Valley
Jeff Bradshaw, Associate Planner, Planning Department
14177 Frederick Street
Moreno Valley, CA 92552
(951) 413-3224
jefferyb@moval.org
5. **Prepared By:** Julie Gilbert, Environmental Project Manager
ELMT Consulting
2201 N. Grand Avenue #10098
(909) 496-5960
Julie.Gilbert@elmtconsulting.com
6. **Project Sponsor:**

Applicant/Developer Parmjit Singh, Owner Farm Market 14058 Redlands Blvd (951) 563-0060 psingh57@aol.com	Property Owner Parmjit Singh, Owner Farm Market 14058 Redlands Blvd (951) 563-0060 psingh57@aol.com
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- 7. **Project Location:** 14058 Redlands Blvd, Moreno Valley
SE Corner of Alessandro Blvd. and Redlands Blvd
Assessor Parcel No. 478-430-029, -030, and -031
Sunnymead USGS Quad; T3N, R3W, Sect. 13
- 8. **General Plan Designation:** Commercial (C)
- 9. **Specific Plan Name and Designation:** Not applicable.
- 10. **Existing Zoning:** Village Commercial (VC) District
- 11. **Surrounding Land Uses and Setting:**

	Land Use	General Plan	Zoning
Project Site	Existing retail market	Commercial	Village Commercial
North	Alessandro Blvd, existing general goods market with gas station	Commercial	Village Commercial (VR) District
South	Kimberly Avenue, residential	Residential: Max. 3 du/ac	Residential 3 (R3) District
East	Residential	Residential: Max. 3 du/ac	Residential 3 (R3) District
West	Redlands Blvd, Post Office (at 28981 Alessandro Blvd., southeast corner of Alessandro Blvd. and Redlands Blvd.), vacant parcels, residential.	Commercial and Residential: Max. 3 du/ac	Village Commercial (VR) District and Residential 3 (R3) District

12. **Description of the Site and Project:**

Environmental Setting

The project site is located at 14058 Redlands Blvd, Moreno Valley, which is generally south of State Route 60 (SR-60) at the southeastern corner of Redlands Blvd and Alessandro Blvd, within the eastern edge of the City of Moreno Valley (“City”), in Riverside County, CA. The project site totals 1.7 acres and is designated as Riverside County’s Assessor’s Parcel Numbers (APNs) 478-430-029, -30, and -31.

The elevation on the project site ranges from approximately 1,594 to 1,604 feet above mean sea level, is generally flat with no areas of significant topographic relief, and slopes gently away from the center.

The project site currently supports an existing market and parking lot on its western half, and undeveloped/vacant land on its eastern half (Figure 1 and Figure 2 **Error! Reference source not found.**). The existing Farm Market was established in 2017.

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The project site vicinity is characterized as a rural commercial/residential transition area with similar commercial uses on the north and west, and residential on the south and east. Major roadways include Alessandro (adjacent to north side of site boundary), Redlands Blvd (adjacent to west side of site boundary), and Kimberly Drive (adjacent to the south side of the site boundary).

Project Description

The Farm Market Plaza Project (“project”) proposes to construct a 1,920 square foot (sf) one-story commercial building, a 2,580 square foot one-story restaurant building, a gas station with eight vehicle fueling positions, and associated parking/access improvements within the existing Farm Market property (Figure 3). The existing Farm Market and wireless telecommunication facility will remain in place and be incorporated into the proposed project.

The commercial building, to be utilized as a small retail store, and the restaurant will be located along the eastern boundary of the site, approximately 10 feet from the existing fence, consistent with City of Moreno Valley development standards. Deliveries and trash service to these facilities will be located at the front of building, which faces west, so no activities will occur between the back of the building and the adjacent residential land use.

The fuel pumps and related infrastructure will be located at the southeast corner of Alessandro Blvd and Redlands Blvd.

The existing 24-foot-wide access driveway on Redlands Blvd will remain in the current location. The access to the site along Alessandro Blvd will move slightly to the east and be improved to a 40-foot driveway.

Once constructed, the commercial building and restaurant would employ approximately six to seven full-time and/or part-time employees during normal working hours. It is anticipated that the hours of the commercial building and restaurant. The fuel pumps are automated, unmanned, with the main controls in the Farm Market, and will be open during similar business hours as the Farm Market.

Project construction includes the removal and reconfiguration of approximately 8,400 sf of existing concrete parking lot and 9,750 sf of existing landscaping, while approximately 3,860 sf of landscaping, 6,480 sf of existing pavement and 6,100 sf of existing buildings will remain. The proposed project will have approximately 49,201 sf of impervious area and 20,682 sf of pervious landscaping. The existing site surface flows southwest onto Redlands Blvd. In compliance with the regional water quality ordinance for the Santa Ana Watershed, all run-off from the portions of the site that are remaining undisturbed will follow the existing drainage path to the south west and will be captured by a new grated inlet and direct this run-off underground easterly to a new underground storage vault where it will comingle with the proposed development run-off. New improvements will direct run-off via surface flow and underground drain lines south east to a proposed underground storage vault that is connected to a Modular Wetland System. Ultimately, all flows will join the existing City storm

drain system within Redlands Blvd, where it will follow the natural drainage path of the San Jacinto River Basin to Lake Elsinore, which is classified as a regional sump.

Construction is estimated as the following:

- Total Construction Time: six months (estimated two weeks for site preparation and two weeks for earthwork; remainder will be building and pump/canopy construction).
- Timing: five months, beginning in summer 2021, with facilities opening and available between 2022 to 2024.

13. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.?

Note: Conducting consultation early in the CEQA process allows tribal governments, lead agencies, and project proponents to discuss the level of environmental review, identify and address potential adverse impacts to tribal cultural resources, and reduce the potential for delay and conflict in the environmental review process. (See Public Resources Code section 21080.3.2.) Information may also be available from the California Native American Heritage Commission's Sacred Lands File per Public Resources Code section 5097.96 and the California Historical Resources Information System administered by the California Office of Historic Preservation. Please also note that Public Resources Code section 21082.3(c) contains provisions specific to confidentiality.

On April 8, 2019, the City of Moreno Valley notified all tribal entity representatives requesting comments from all tribes that had previously submitted notification requests pursuant to AB52. At the conclusion of the 30-day consultation period the City had received 3 responses from the tribes listed below and no requests for consultation.

- Jessica Mauck, Cultural Resources Analyst , San Manuel Band of Mission Indians
- Mr. Travis Armstrong, Morongo Band of Mission Indians
- Lacy Padilla, Agua Caliente Band of Cahuilla Indians

After the closure of the 30-day comment period the City did receive a request from Mr. Joseph Ontiveros, Director of Cultural Resources, Soboba Band of Luiseño Indians to allow for additional time to respond to the notice. In response the City identified that a copy of the Notice of Availability would be sent to the tribe should they wish to comment on this Initial Study.

14. Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement):

State Agencies:

- Regional Water Quality Control Board (RWQCB) - National Pollutant Discharge Elimination System (NPDES) Construction General Permit
- California Department of Industrial Relations - Annual Trench/Excavation Permit

- California Department of Tax and Fee Administration - Underground Storage Tank Registration

Local Agencies:

- Riverside County Environmental Health, Hazardous Materials Management Services (CUPA)
 - UST Construction/Repair Permit
 - Operation Permit
 - Hazardous Materials Management Plan (HMMP) through the California Environmental Reporting System (CERS)
 - Inspections (underground storage tank placement, pipe test, and monitoring test; Enhanced Leak Detection test; and a final inspection)
- Riverside County Environmental Health – food/beverage
- South Coast Air Quality Management District – Permit to Construct, Permit to Operate (fuel station)

15. **Other Technical Studies Referenced in this Initial Study (Provided as Appendices):**

Appendix A Air Quality and Greenhouse Gas Analysis

Appendix B Biological Resources and MSHCP Compliance

Appendix C Cultural and Paleontological Report

Appendix D Energy Analysis

Appendix E Geotechnical Analysis

Appendix F Hydrology Analysis and Water Quality Management Plan

Appendix G Noise Impact Study

Appendix H-1 Traffic Impact Study

Appendix H-2 Redlands Blvd and Alessandro Blvd Intersection Review

Appendix H-3 Vehicles Miles Traveled Analysis

17. Acronyms:

ADA -	American with Disabilities Act
ALUC -	Airport Land Use Commission
ALUCP -	Airport Land Use Compatibility Plan
AQMP -	Air Quality Management Plan
CEQA -	California Environmental Quality Act
CIWMD -	California Integrated Waste Management District
CMP -	Congestion Management Plan
DTSC -	Department of Toxic Substance Control
DWR -	Department of Water Resources
EIR -	Environmental Impact Report
EMWD -	Eastern Municipal Water District
EOP -	Emergency Operations Plan
FEMA -	Federal Emergency Management Agency
FMMP -	Farmland Mapping and Monitoring Program
GIS -	Geographic Information System
GHG -	Greenhouse Gas
GP -	General Plan
HCM	Highway Capacity Manual
HOA -	Home Owners' Association
IS -	Initial Study
LHMP -	Local Hazard Mitigation Plan
LOS -	Level of Service
LST -	Localized Significance Threshold
MARB -	March Air Reserve Base
MARB/IPA-	March Air Reserve Base/Inland Port Airport
MSHCP -	Multiple Species Habitat Conservation Plan
MVFP -	Moreno Valley Fire Department
MVPD -	Moreno Valley Police Department
MVUSD -	Moreno Valley Unified School District
MWD -	Metropolitan Water District
NCCP -	Natural Communities Conservation Plan
NPDES -	National Pollutant Discharge Elimination System
OEM -	Office of Emergency Services
OPR -	Office of Planning & Research, State
PEIR -	Program Environmental Impact Report
PW -	Public Works
RCEH -	Riverside County Environmental Health
RCFCWCD -	Riverside County Flood Control & Water Conservation District
RCP -	Regional Comprehensive Plan
RCTC -	Riverside County Transportation Commission
RCWMD -	Riverside County Waste Management District
RTA -	Riverside Transit Agency
RTIP -	Regional Transportation Improvement Plan
RTP -	Regional Transportation Plan
SAWPA -	Santa Ana Watershed Project Authority
SCAG -	Southern California Association of Governments
SCAQMD -	South Coast Air Quality Management District
SCE -	Southern California Edison
SCH -	State Clearinghouse

- SKRHCP - Stephens' Kangaroo Rat Habitat Conservation Plan
- SWPPP - Storm Water Pollution Prevention Plan
- SWRCB - State Water Resources Control Board
- USFWS - United States Fish and Wildlife
- USGS - United States Geologic Survey
- VMT - Vehicle Miles Traveled
- VVUSD - Valley Verde Unified School District
- WQMP - Water Quality Management Plan
- WRCOG - Western Riverside Council of Government

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:


The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

- | | | | | | |
|--------------------------|-----------------------------|--------------------------|----------------------------------|--------------------------|------------------------------------|
| <input type="checkbox"/> | Aesthetics | <input type="checkbox"/> | Agriculture & Forestry Resources | <input type="checkbox"/> | Air Quality |
| <input type="checkbox"/> | Biological Resources | <input type="checkbox"/> | Cultural Resources | <input type="checkbox"/> | Energy |
| <input type="checkbox"/> | Geology & Soils | <input type="checkbox"/> | Greenhouse Gas Emissions | <input type="checkbox"/> | Hazards & Hazardous Materials |
| <input type="checkbox"/> | Hydrology & Water Quality | <input type="checkbox"/> | Land Use & Planning | <input type="checkbox"/> | Mineral Resources |
| <input type="checkbox"/> | Noise | <input type="checkbox"/> | Population & Housing | <input type="checkbox"/> | Public Services |
| <input type="checkbox"/> | Recreation | <input type="checkbox"/> | Transportation | <input type="checkbox"/> | Tribal Cultural Resources |
| <input type="checkbox"/> | Utilities & Service Systems | <input type="checkbox"/> | Wildfire | <input type="checkbox"/> | Mandatory Findings of Significance |

DETERMINATION (To be completed by the Lead Agency):

On the basis of this initial evaluation:

- I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- I find that the proposed project MAY have a "potentially significant" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.



 Signature
Jeff Bradshaw

 Printed Name

04/22/21

 Date
City of Moreno Valley

 For

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EVALUATION OF ENVIRONMENTAL IMPACTS:

- 1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a Lead Agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g. the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g. the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
- 2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
- 3) Once the Lead Agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect is significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.
- 4) "Less Than Significant with Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less than Significant Impact." The Lead Agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from Section XVII, "Earlier Analyses," may be cross-referenced).
- 5) Earlier analyses may be used where, pursuant to the tiering, program EIR, or another CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:
 - a) Earlier Analyses Used. Identify and state where they are available for review.
 - b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
 - c) Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.
- 6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g. general plans, zoning ordinances). Reference to a

previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

- 7) Supporting Information Sources. A source list should be attached, and other sources used, or individuals contacted should be cited in the discussion.
- 8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.
- 9) The explanation of each issue should identify:
 - a) the significance criteria or threshold, if any, used to evaluate each question; and
 - b) the mitigation measure identified, if any, to reduce the impact to less than significance.

ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
I. AESTHETICS – Except as provided in Public Resources Code §21099 – Modernization of Transportation Analysis for Transit-Oriented Infill Projects – Would the project:				
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>Response: According to the General Plan, the major scenic resources within Moreno Valley are visible from State Route 60. The dominant view is of the Box Springs Mountains to the immediate north and the Mount Russell foothills to the south. Both mountain ranges display numerous rock outcroppings and boulders that add visual character to these landforms. Moreno Peak is part of a prominent landform located south of State Route 60 along Moreno Beach Drive. This landform only rises a few hundred feet above the valley floor but has a unique location near the center of the valley. Moreno Beach Drive, the main route to Lake Perris from State Route 60, offers views of Moreno Peak and a panoramic view of Moreno Valley.</p> <p>The Project site is situated at the eastern end of the City of Moreno Valley, with views into surrounding mountains to the north and east. The project site vicinity is characterized as a rural commercial/residential transition area with similar commercial uses on the north and west, and residential on the south and east. Major roadways include Alessandro (adjacent to north side of site boundary), Redlands Blvd (adjacent to west side of site boundary), and Kimberly Drive (adjacent to the south side of the site boundary).</p> <p>The elevation on the project site ranges from approximately 1,594 to 1,604 feet above mean sea level, is generally flat with no areas of significant topographic relief, and slopes gently away from the center.</p> <p>Scenic vistas in the project vicinity include views of the mountains to the north of the project site, across State Route 60 (SR 60).</p> <p>The project site is the site of an existing food market and is developed with paving and utilities. The proposed project would modify the undeveloped portions of the project site and the parking lot, including ingress/egress, to allow the construction of a one-story multi-tenant commercial building and a gas station. The proposed structures would not be more than one story in height, would be constructed on a site that is already developed, and do not block views of the mountains to the north because the existing market is directly behind them to the south.</p> <p>Therefore, there is a less than significant impact, and no mitigation is required.</p>				
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>Response: The project site vicinity is characterized as a rural commercial/residential transition area with similar commercial uses on the north and west, and residential on the south and east. Major roadways include Alessandro (adjacent to north side of site boundary), Redlands Blvd (adjacent to west side of site boundary), and Kimberly Drive (adjacent to the south side of the site boundary). There are no protected trees, rock outcroppings, or historic buildings within a state scenic highway on the project site or within its vicinity.</p> <p>Therefore, there is no impact.</p>				
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<p>those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?</p>				
<p>Response: As noted above, the project vicinity is characterized as a rural commercial/residential transition area with similar commercial uses on the north and west, and residential on the south and east. The proposes improvements to an existing commercially developed parcel. Because the site is already commercial in nature, the addition of single-story commercial buildings and a gas station would not change the nature of the site as compared to existing conditions. In addition, the project would not conflict with any local zoning or other regulations regarding scenic quality.</p> <p>Therefore, there is a less than significant impact, and no mitigation is required.</p>				
<p>d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>Response: The project site is currently developed with a commercial market, at the intersection of two major roadways, within a rural residential and commercial area. Implementation of the project would involve the construction of both a new commercial building and a gas station. The gas station in particular, and the additional site lighting, would emit light during night operations that has the impact to affect views into the project site. However, the project will be conditioned by the lead agency to follow all lighting requirements in the City's Municipal Code. This includes ensuring all lighting, including security lighting, is directed downwards. Further, the site is zoned Village Commercial (VC) District and is therefore intended to be occupied by uses such as those proposed by the project, including light emissions typical of commercial projects.</p> <p>Therefore, there is a less than significant impact, and no mitigation is required.</p> <p>Sources:</p> <ol style="list-style-type: none"> 1. Moreno Valley General Plan, adopted July 11, 2006 <ul style="list-style-type: none"> • Chapter 2 – Community Development Element – Section 2.3 – Community Design • Chapter 7 – Conservation Element – Section 7.8 – Scenic Resources <ul style="list-style-type: none"> - Figure 7-2 – Major Scenic Resources 2. Final Environmental Impact Report City of Moreno Valley General Plan, certified July 11, 2006 <ul style="list-style-type: none"> • Section 5.11 – Aesthetics <ul style="list-style-type: none"> - Figure 5.11-1 – Major Scenic Resources 3. Title 9 – Planning and Zoning of the Moreno Valley Municipal Code <ul style="list-style-type: none"> • Section 9.10.110 – Light and Glare of the Moreno Valley Municipal Code. • Chapter 9.16 – Design Guidelines • Section 9.17.030 G – Heritage Trees 				

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ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<p>II. AGRICULTURE AND FOREST RESOURCES – In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state’s inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest protocols adopted by the California Air Resources Board.</p> <p>Would the project:</p>				
<p>a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>Response: The proposed project is located an urbanized area of the City of Moreno Valley. The project improvements will occur on an existing developed site. According to the California Department of Conservation Farmland Mapping and Program, the project site does not contain prime agricultural soils. There are no agricultural uses on the site, and none are proposed.</p> <p>Therefore, there is no impact.</p>				
<p>b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>Response: The project site is not zoned for agricultural use by the City of Moreno Valley Zoning Map and is not the site of any Williamson Act contracts.</p> <p>Therefore, there no impact.</p>				
<p>c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>Response: No part of the project site or its surroundings are designated as timberland.</p> <p>Therefore, there is no impact.</p>				
<p>d) Result in the loss of forest land or conversion of forest land to non-forest use?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>Response: There is no designated forest land on the project site, and the proposed project would therefore not affect forests during construction or operations.</p>				

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ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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Therefore, there is no impact.

e) Involve other changes in the existing environment which, due to their location or nature, could result in the conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Response: The project site is not zoned for or under use as Farmland or forest land.

Therefore, there is no impact.

Sources:

1. Moreno Valley General Plan, adopted July 11, 2006
 - Chapter 7 – Conservation Element – Section 7.7 – Agricultural Resources
2. Final Environmental Impact Report City of Moreno Valley General Plan, certified July 11, 2006
 - Section 5.8 – Agricultural Resources
 - Figure 5.8-1 – Important Farmlands
3. Title 9 – Planning and Zoning of the Moreno Valley Municipal Code
4. City of Moreno Valley Zoning Map, Revision Date: 1.22.20 Print Date: 3.06.20

III. AIR QUALITY – Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. **Would the project:**

a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Response: The project site is located in the City of Moreno Valley, which is part of the South Coast Air Basin (SCAB), regulated by the South Coast Air Quality Management District (SCAQMD). The US environmental Protection Agency (EPA) and the California Air Resources Board (CARB) designate air basins where ambient air quality standards are exceeded as “nonattainment” areas. If standards are met, the area is designated as an “attainment” area. If there is inadequate or inconclusive data to make a definitive attainment designation, they are considered “unclassified.” National nonattainment areas are further designated as marginal, moderate, serious, severe, or extreme as a function of deviation from standards.

The SCAQMD’s 2016 Air Quality Management Plan (AQMP) assesses the attainment status of the SCAB. The NAAQS and CAAQS attainment statuses for the SCAB are listed in Table 5 of Appendix A.

The SCAQMD updates the AQMP every three years. Each iteration of the AQMP is an update of the previous plan and has a 20-year horizon. The latest AQMP, the 2016 AQMP incorporates new scientific data and notable regulatory actions that have occurred since adoption of the 2012 AQMP, including the approval of the federal 8-hour ozone standard of 0.070 parts per million (ppm) that was finalized in 2015. The 2016 AQMP builds upon the approaches taken in the 2012 AQMP for the attainment of federal PM and ozone standards and highlights the significant amount of reductions to be achieved. It emphasizes the need for interagency planning to identify additional strategies to achieve reductions within the timeframes allowed under the federal Clean Air Act, especially in the area of mobile sources. The 2016 AQMP also includes a discussion of emerging issues and opportunities, such as fugitive toxic particulate emissions, zero-emission mobile source control strategies, and

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ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<p>the interacting dynamics among climate, energy, and air pollution. The 2016 AQMP also includes attainment demonstrations of the new federal 8-hour ozone standard and vehicle miles travelled (VMT) emissions offsets, as per recent United States Environmental Protection Agency requirements (SCAQMD 2017).</p> <p>A project may be inconsistent with the AQMP if it would generate population, housing, or employment growth exceeding the forecasts used in the development of the AQMP. The SCAQMD identifies that a proposed project should be considered to be consistent with the AQMP if it furthers one or more policies and does not obstruct other policies as follows:</p> <ul style="list-style-type: none"> • Whether the project will result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP. • Whether the project will exceed the assumptions in the AQMP in 2016 or increments based on the year of project buildout and phase. <p><u>Criterion 1 - Increase in the Frequency or Severity of Violations</u></p> <p>Based on the air quality modeling analysis contained in this Air Analysis, neither short-term construction impacts, nor long-term operations will result in significant impacts based on the SCAQMD regional and local thresholds of significance.</p> <p>Therefore, the proposed project is not projected to contribute to the exceedance of any air pollutant concentration standards and is found to be consistent with the AQMP for Criterion 1.</p> <p><u>Criterion 2 - Exceed Assumptions in the AQMP?</u></p> <p>Consistency with the AQMP assumptions is determined by performing an analysis of the proposed project with the assumptions in the AQMP. The emphasis of this criterion is to ensure that the analyses conducted for the proposed project are based on the same forecasts as the AQMP. The 2016- 2040 Regional Transportation/Sustainable Communities Strategy, prepared by SCAG, 2016, includes chapters on: the challenges in a changing region, creating a plan for our future, and the road to greater mobility and sustainable growth. These chapters currently respond directly to federal and state requirements placed on SCAG. Local governments are required to use these as the basis of their plans for purposes of consistency with applicable regional plans under CEQA. For this project, the City of Moreno Valley General Plan Land Use Map defines the assumptions that are represented in the AQMP.</p> <p>The proposed project is consistent with its zoning and land use designations of Village Commercial (VC) District and Commercial Land Use according to the City of Moreno Valley General Plan Land Use Map. Therefore, it is not anticipated that the project would exceed the AQMP assumptions for the project site, and therefore is consistent with the AQMP for Criterion 2.</p> <p>Based on the above, the proposed project will not result in an inconsistency with the SCAQMD AQMP.</p> <p>Therefore, there is a less than significant impact, and no mitigation is required.</p>				

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ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<p>b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>Response: The project site is located in the SCAB which is designated as a non-attainment area for particulate matter less than 10 microns in diameter (PM-10) under state standards, and for ozone and particulate matter less than 2.5 microns in diameter (PM-2.5) under both state and federal standards (refer to Table 5 in Appendix A). The SCAQMD also has developed regulatory standards for criteria pollutants that are considered pre-cursors to Ozone, PM₁₀ and PM_{2.5} production. These include carbon monoxide (CO), nitrogen dioxide (NO_x), sulfur dioxide (SO₂).</p> <p>Regional air quality is measured at monitoring stations located throughout the SCAB. The air quality analysis located in Appendix A utilized data from the Perris and Riverside stations to compare the project's potential impacts against the SCAQMD standards for the local area.</p> <p>Based on the analysis provided in Appendix A, the proposed project would result in short-term emissions from construction associated with site grading/preparation, utilities installation, construction of buildings, and paving. The proposed project would also generate operational emissions associated with new vehicle traffic and energy use.</p> <p><u>Construction Impacts</u></p> <p>Construction activities associated with the Proposed Project would result in emissions of carbon monoxide (CO), volatile organic compounds (VOCs), nitrogen oxides (NO_x), sulfur oxides (SO₂), PM₁₀, and PM_{2.5}, however, none are above the SCAQMD thresholds. Estimated construction emissions from the proposed project are provided in Table 8 and Table 9 of Appendix A.</p> <p><u>Operational Impacts</u></p> <p>Operational activities associated with the Proposed Project would result in emissions of reactive organic gases (ROG), NO_x, CO, SO₂, PM₁₀, and PM_{2.5}, however, none are above the SCAQMD thresholds. Estimated operational emissions from the proposed project are provided in Table 10 and Table 11 of Appendix A.</p> <p>Therefore, overall, there is a less than significant impact, and no mitigation is required.</p>				
<p>c) Expose sensitive receptors to substantial pollutant concentrations?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>Response: The project parcel is bounded by Alessandro Blvd on the north, Redlands Blvd on the west, Kimberly Ave on the south, and existing residential on the east. Residential land uses closest to the project site are located along the north side of Alessandro Blvd, along the south side of Kimberly Ave and directly along the eastern property boundary.</p> <p>As previously demonstrated, none of the construction and operational emissions exceed local standard thresholds. Therefore, the impact is less than significant.</p>				

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<p>The proposed project will also implement the most recent measures for evaporative recovery fueling nozzles, which are required per regulation in California. Based on the calculations provided in Appendix A, the SCAQMD's operational threshold of significance for daily VOC would not be exceeded (refer to Table 10 in Appendix A).</p> <p>Per Table 10 in Appendix A, project's unmitigated operational VOC emissions are 2.25 lbs/day. Section 8.0 of the analysis in Appendix A identifies that at 2,611 gallons per day the calculated uncontrolled ORVR VOC would be 22 lbs/day. Even if an additional 22 lbs/day (which represents the <u>uncontrolled [no ORVR or phase II]</u> vehicle fueling emission factor for each 1,000 gallons pumped) were added to the project's operational VOC emissions, the total emissions of 24.25 lbs/day would not exceed the SCAQMD's operational threshold of significance of 55 lbs per day for VOC. However, the vehicle fueling emissions factor with ORVR and Phase II EVR in place is 0.021 lbs per thousand gallons which equates to 0.055 lbs/day. The emissions amount is below the VOC threshold of significance and the impact is less than significant. Furthermore, both ORVR and Phase II EVRs are required per regulation in California. Based on these assumptions, the analysis in Appendix A identified that the VOC daily emissions threshold the gas pumps at the project site would have to pump over a million gallons of fuel per day (versus the project's approximately 2,611 gallons per day) to exceed the daily VOC threshold. Based on the fact this is a small fuel station designed to serve a local area, the project will not serve over a million gallons of fuel per day.</p> <p>The Health Risk Assessment performed for the Project (refer to Section 8.0 of Appendix A) identified that the proposed project has greater than a 150-foot separation between the single-family residential dwellings to the north, south and east and the underground storage tanks and dispensing facilities, per the State recommendations. Additionally, the SCAQMD gasoline station Health Risk Assessment screening tables identify the potential Maximum Individual Cancer Risk (MICR) is at approximately 82 feet, whereas the nearest receptors area approximately 150 feet. Additionally, the project is estimated to have approximately 0.94 million metered (MM) gallons of through put per year which equates to an approximate 1.58 in a million MICR, at a distance of approximately 150 feet. The risk, therefore, is below SCAQMD's 10 in a million threshold.</p> <p>Therefore, there is a less than significant impact, and no mitigation is required.</p>				
<p>d) Result in other emissions (such as those leading to odors adversely affecting a substantial number of people?)</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>Response: The project parcel is bounded by Alessandro Blvd on the north, Redlands Blvd on the west, Kimberly Ave on the south, and existing residential on the east. Residential land uses closest to the project site include along the north side of Alessandro Blvd, along the south side of Kimberly Ave and along the eastern property boundary.</p> <p>Construction of the project has the potential to emit odors during the operation of heavy equipment and application of materials such as asphalt pavement. However, the objectionable odors that may be produced during the construction process are short-term in nature. Potential odor emissions from pavement emissions are expected cease upon the drying or hardening of the pavement. Diesel exhaust and volatile organic compounds (VOCs) would be emitted by heavy equipment used during construction, which are objectionable to some; however, these emissions would disperse rapidly from the project site and therefore should not reach an objectionable level at the nearest sensitive receptors. Due to the short-term nature and limited amounts of odor producing materials being utilized, no significant impact related to odors would occur during construction of the proposed project.</p>				

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Potential sources that may emit odors during the on-going operations of the proposed project would include odor emissions from the service station operations. Residential land uses closest to the fuel station include along the north side of Alessandro Blvd, along the south side of Kimberly Ave and along the eastern property boundary, but are approximately 200 to 400 feet away from the fueling station location on the parcel. Due to the distance of the nearest receptors from the project site and through compliance with SCAQMD's Rule 402 no significant impact related to odors would occur during the on-going operations of the proposed project. Furthermore, gasoline dispensing facilities are required to use Phase I/II EVR (enhanced vapor recovery) systems, which also reduce odor. Vehicle emissions and vapor recovery systems are addressed in Section 6.2.2 of the air quality analysis in Appendix A. Therefore, there will be a less than significant impact from operational odor.

Therefore, overall, there is a less than significant impact, and no mitigation is required.

Sources:

1. Moreno Valley General Plan, adopted July 11, 2006
 - Chapter 5 – Circulation Element
 - Chapter 6 – Safety Element – Section 6.6 – Air Quality
2. Final Environmental Impact Report City of Moreno Valley General Plan, certified July 11, 2006
 - Section 5.3 – Air Quality
 - Figure 5.3-1 – South Coast Air Basin
 - Appendix C – Air Quality Analysis, P&D Consultants, July 2003
3. Title 9 – Planning and Zoning of the Moreno Valley Municipal Code
 - Section 9.10.050 – Air Quality of the Moreno Valley Municipal Code
 - Section 9.10.150 – Odors of the Moreno Valley Municipal Code
 - Section 9.10.170 – Vibration of the Moreno Valley Municipal Code
4. Moreno Valley Municipal Code Section 12.50.040 – Limitations on Engine Idling
5. Air Quality Greenhouse Gas Impact Study, 10/9/2019, prepared by MD Acoustics (Appendix A).

IV. BIOLOGICAL RESOURCES – Would the project:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Response: A biological resources assessment was conducted for the proposed project (Appendix B) to determine if there are special species on the project site that are identified by the California Department of Fish and Game or U.S. Fish and Wildlife Service and local and regional plans. The City of Moreno Valley is a signatory to the Western Riverside Multiple Species Habitat Conservation Plan (MSHCP), which is a comprehensive, multi-jurisdictional, long-term effort to conserve specific plant and animal species, including endangered and threatened species, and associated habitats throughout western Riverside County. The MSHCP requires that a project comply with the MSHCP rules and regulations set forth in the MSHCP. The biological resources assessment in Appendix B also evaluated the project for special species and habitats as identified by the MSHCP.

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ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<p>The project site is comprised of three parcels for a total of 1.7 acres and completely surrounded by existing residential and commercial development. The site currently supports an existing market and parking lot on its western half, and undeveloped/vacant land on its eastern half.</p> <p>Based on the analysis provided in Appendix B, there are no State, federal, special species, or special habitats that occur on or near the project site. There are also no jurisdictional drainages on-site.</p> <p>With respect to the MSHCP, the project site is not located within or adjacent to any criteria cell. No riverine/riparian resources or vernal pools were found onsite; therefore, the project consistent the MSHCP. The project site is not located within any MSCHP-designated special species areas for amphibians, mammals, burrowing owl, narrow endemic plants, or criteria area plants. The site is designated as urbanized and developed. Therefore, the project will not impact MSHCP sensitive resources.</p> <p>The project site is located within the MSHCP Mitigation Fee Area of the Stephen's Kangaroo Rat Habitat Conservation Plan (SKR HCP). Therefore, the applicant will be required to pay the SKR HCP Mitigation Fee prior to development of the project site.</p> <p>The analysis in Appendix B identified that the vegetation and trees on site have the potential to support bird foraging and nesting birds, which are protected by the Migratory Bird Treaty Act and the California Fish and Game Code. The loss of individuals would result in a potentially significant impact. Therefore, implementation of Mitigation Measure BIO-1 is required to reduce impacts to less than significant.</p> <p>BIO-1: If construction occurs between February 1st and August 31st, a pre-construction clearance survey for nesting birds shall be conducted within ten (10) days of the start of any vegetation removal or ground disturbing activities to ensure that no nesting birds will be disturbed during construction. The biologist conducting the clearance survey shall document a negative survey with a brief letter report indicating that no impacts to active avian nests will occur. If an active avian nest is discovered during the pre-construction clearance survey, construction activities should stay outside of a no-disturbance buffer. The size of the no-disturbance buffer shall be determined by the wildlife biologist and will depend on the level of noise and/or surrounding anthropogenic disturbances, line of sight between the nest and the construction activity, type and duration of construction activity, ambient noise, species habituation, and topographical barriers. These factors shall be evaluated on a case-by-case basis when developing buffer distances. Limits of construction to avoid an active nest shall be established in the field with flagging, fencing, or other appropriate barriers; and construction personnel shall be instructed on the sensitivity of nest areas. A biological monitor shall be present to delineate the boundaries of the buffer area and to monitor the active nest to ensure that nesting behavior is not adversely affected by the construction activity. Once the young have fledged and left the nest, or the nest otherwise becomes inactive under natural conditions, construction activities within the buffer area can occur.</p> <p>Therefore, there is a less than significant impact with the implementation of. Mitigation Measure BIO-1.</p>				
<p>b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<p>Response: A biological resources assessment was conducted for the proposed project (Appendix B) to determine if there are any riparian habitat or other sensitive natural community on the project site that are identified by the California Department of Fish and Game or U.S. Fish and Wildlife Service and local and regional plans. Section 6.1.2 of the MSHCP also describes the process through which protection of riparian/riverine areas and vernal pools would occur within the MSHCP Plan Area. The biological resources assessment in Appendix B also evaluated the project for riparian and other sensitive natural communities as identified by the MSHCP.</p> <p>The project site is comprised of three parcels for a total of 1.7 acres and completely surrounded by existing residential and commercial development. The site currently supports an existing market and parking lot on its western half, and undeveloped/vacant land on its eastern half.</p> <p>Based on the analysis provided in Appendix B, , there is no riparian habitat or other sensitive natural community that occurs on or near the project site. There are also no jurisdictional drainages on-site. With respect to the MSHCP, no riverine/riparian resources or vernal pools were found onsite; therefore the project consistent the MSHCP.</p> <p>Therefore, there is a less than significant impact, and no mitigation is required.</p>				
<p>c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>Response: The project site is comprised of three parcels for a total of 1.7 acres and completely surrounded by existing residential and commercial development. The site currently supports an existing market and parking lot on its western half, and undeveloped/vacant land on its eastern half. A biological resources assessment was conducted for the proposed project (Appendix B) to determine if there are any state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) Section 6.1.2 of the MSHCP also describes the process through which protection of riparian/riverine areas and vernal pools would occur within the MSHCP Plan Area. The biological resources assessment in Appendix B also evaluated the project for riparian/riverine areas and vernal pools as identified by the MSHCP.</p> <p>The biological resources report in Appendix B identified that there were no drainages, wetlands or riparian/riverine features on the project site.</p> <p>Additionally, there was no evidence of recent or historic of astatic or vernal pool conditions within the project site. No ponding was observed during the field investigation and the drainage patterns currently occurring on the project site do not follow hydrologic regime needed for vernal pools. The report concluded that there is no indication of vernal pools occurring within the proposed project site.</p> <p>Therefore, there is no impact.</p>				
<p>d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with an established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<p>Response: A wildlife corridor is defined as a linear landscape element which serves as a linkage between historically connected habitats/natural areas and is meant to facilitate movement between these natural areas. During the field survey, the project site was assessed for its ability to facilitate wildlife movement and for the presence of wildlife corridors.</p> <p>The project is located in an urbanized area on a developed site. As a result, it does not contain any wildlife corridors or nursery sites.</p> <p>Therefore, there is no impact.</p>				
<p>e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>Response: The project does not propose the removal of any trees that would be protected by any City of Moreno Valley tree protection ordinance.</p> <p>Therefore, there is no impact.</p>				
<p>f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or another approved local, regional, or state habitat conservation plan?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>Response: The City of Moreno Valley is a permittee under the MSHCP, and therefore, the City is required to comply various sections of the MSHCP. The project site is located within the Reche Canyon/Badlands Area Plan of the MSHCP but is not located within any Criteria Cells or MSHCP Conservation Areas (Appendix B). Additionally, the project site is not located within any designated species survey areas as identified by the Riverside Conservation Authority Information Map (Appendix B).</p> <p>The project site is not specifically identified as a Covered Activity under Section 7.1 of the MSHCP, therefore, public and private development that are outside of Criteria Areas and Public/Quasi-Public (PQP) Lands are permitted under the MSHCP, subject to consistency with MSHCP policies that apply to area outside of Criteria Areas. As such, to achieve coverage, the project must be consistent with the following policies of the MSHCP. The Biological Assessment in Appendix B included a consistency analysis with the MSHCP. The analysis determined that the proposed project was consistent with the MSHCP.</p> <p>The project site is located within the Mitigation Fee Area of the SKR HCP. Therefore, the applicant will be required to pay the SKR HCP Mitigation Fee prior to development of the project site. Payment of this mitigation fee is a requirement by the MSHCP permittees to developers and not considered a mitigation measure to reduce impacts under CEQA criteria. Therefore, the proposed project has less than significant impacts.</p> <p>Therefore, there is a less than significant impact, and no mitigation is required.</p>				
<p>Sources:</p> <ol style="list-style-type: none"> 1. Moreno Valley General Plan, adopted July 11, 2006 <ul style="list-style-type: none"> • Chapter 7 – Conservation Element – Section 7.1 – Biological Resources 2. Final Environmental Impact Report City of Moreno Valley General Plan, certified July 11, 2006 				

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ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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- Section 5.9 – Biological Resources
 - Figure 5.9-1 – Planning Area Biological Geographic Sections
 - Figure 5.9-2 – Planning Area Vegetation Community
 - Figure 5.9-3 – Project Site Location within the MSHCP Area
 - Figure 5.9-4 – Reche Canyon/Badlands Area Plan
- Appendix E – Biological Resources Study, Appendix E
- 3. Title 9 – Planning and Zoning of the Moreno Valley Municipal Code
 - Section 9.17.030 G – Heritage Trees
- 4. Moreno Valley Municipal Code Chapter 8.60 – Threatened and Endangered Species
- 5. Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP), <http://www.wrc-rca.org/about-rca/multiple-species-habitat-conservation-plan/>
- 6. Stephens’ Kangaroo Rat Habitat Conservation Plan (SKRHCP), [Governing Documents | RCHCA, CA](#)
- 7. Biological Resources Assessment and Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) Consistency Analysis for the Redlands Alessandro Commercial Plaza Located in the City of Moreno Valley, Riverside County, California, prepared by ELMT Consulting, September 3, 2020 (Appendix B).

V. CULTURAL RESOURCES – Would the project:

a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5 ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Response: Under CEQA, a “historical resource” is defined generally as meeting any of the criteria found in Section 15064.5(a) of the CEQA Guidelines, including: (1) a resource determined by the State Historical Resources Commission to be eligible for the California Register of Historical Resources (including all properties on the National Register); (2) a resource included in a local register of historical resources, as defined in Public Resources Code (PRC) Section 5020.1(k); (3) a resource identified as significant in a historical resource survey meeting the requirements of PRC Section 5024.1(g); or (4) any object, building, structure, site, area, place, record, or manuscript that the City determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, provided the City’s determination is supported by substantial evidence in light of the whole record. Generally, a resource shall be considered to be historically significant if it meets the criteria for listing on the California Register.

A Phase 1 Cultural and Paleontological Resources report was prepared for the project site (Appendix C). The report included a records search conducted at the Eastern Information Center (EIC) located at the University of California, Riverside. The records search provided information on all documented cultural resources and previous archaeological investigations within 0.5-mile of the project area. Resources consulted during the records search included the National Register of Historic Places (NRHP), California Historical Landmarks, California Points of Historical Interest, and the California State Historic Resources Inventory. Additionally, the Phase 1 report included a review of historic aerial photographs of the project area to determine the presence of any historic structures.

The EIC records search identified 11 cultural resource studies that had been completed previously within the 0.5-mile records search radius, but none of the 11 were on the project site. Historic aerial photographs and topographic maps of the project area reveal that no structures existed on the portions of the project site proposed for development.

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<p>The field survey conducted as part of the Phase 1 report identified that the project area is disturbed and highly developed in the western half with the existing Farm Market building, concrete driveway, parking lot, and wireless telecommunication facility. The eastern half of the property is a vacant lot that has been recently disked and cleared of weeds. Concrete, wood and modern debris was observed. Overall ground visibility was high in the eastern half of the property (95%). Soil in the area primarily consisted of light brown silty clay. The Phase 1 report concluded that there are no historical resource pursuant to §15064.5 on site.</p> <p>Therefore, there is no impact.</p>				
<p>b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>Response: Archaeological resources are generally considered the material remains of past societies (as defined by the Society for Historical Archaeology). Under CEQA, the “significance of an archaeological resource: is defined generally as meeting any of the criteria found in Section 15064.5(a) (refer to previous response for list of criteria under Section 15064.5(a).</p> <p>Public Resources Code (PRC) Section 21083.2 states that if an archeological site is not a historical resource but meets the definition of a “unique archeological resource,” then it should be treated in accordance with generally the provisions identified in Section 15064.5. PRC Section 21083.2 also defines a “unique archaeological resource” as meeting at least one of three criteria, generally defined as: information needed to answer scientific research, has a special quality or is directly associated with a scientifically recognized important prehistoric or historic event or person.</p> <p>A Phase 1 Cultural and Paleontological Resources report was prepared for the project site (Appendix C). The report identified the history of human occupation of the Moreno Valley area, including a history of Native American and European settlement. Research for the report included a records search performed at the Eastern Information Center (EIC) located at the University of California, Riverside. The purpose of the records search was to document previous archaeological investigations within 0.5-mile of the project area. Other research included a Native American Sacred Lands Search through the Native American Heritage Commission (NAHC) and a field investigation.</p> <p>The NAHC Sacred Lands File search did not identify any sacred sites or tribal cultural resources within the search radius. The record search from the EIC did not identify any previous cultural resources studies of the project site, but did identify two previously recorded archaeological resources consisted of prehistoric milling sticks that were identified within 0.5-mile of the project boundary.</p> <p>The Phase 1 Cultural and Paleontological Resources report (Appendix C) stated that the lack of resources for the project site directly, as identified by the record search and field survey, is not conclusive indication of an absence of resources. As such, the report identified that there is a potential to encounter buried archaeological deposits because the project is in an area inhabited both prehistorically and historically, as well as being on an alluvial fan. Therefore, the Phase 1 report recommended that construction excavations be spot checked to determine the presence or absence of potential cultural resources. Therefore, implementation of Mitigation Measure CUL-1 is required to reduce impacts to less than significant.</p> <p>CUL-1: A Secretary of the Interior qualified archaeologist will spot check construction excavations within undisturbed soil to determine the presence or absence of cultural resources. The qualified archaeologist will then be able to recommend increasing or decreasing monitoring activities based on sub-surface findings.</p>				

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Therefore, there is a less than significant impact with the implementation of. **Mitigation Measure CUL-1.**

c) Disturb any human remains, including those interred outside of formally dedicated cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Response: Based on an analysis of records and archaeological survey of the property, it has been determined that the project site does not include a formal cemetery or any archaeological resources that might contain interred human remains. Nonetheless, the project will be required to adhere to State Health and Safety Code Section 7050.5 if in the event that human remains are encountered and by ensuring that no further disturbance occur until the County Coroner has made the necessary findings as to origin of the remains. Furthermore, pursuant to Public Resources Code Section 5097.98 (b), remains shall be left in place and free from disturbance until a final decision as to the treatment and their disposition has been made. This is State Law, is also considered a standard Condition of Approval and as pursuant to CEQA, is not considered mitigation. Therefore, impacts in this regard are considered less than significant.

Sources:

1. Moreno Valley General Plan, adopted July 11, 2006
 - Chapter 7 – Conservation Element – Section 7.2 – Cultural and Historical Resources
2. Final Environmental Impact Report City of Moreno Valley General Plan, certified July 11, 2006
 - Section 5.10 – Cultural Resources
 - Figure 5.10-1 – Locations of Listed Historic Resource Inventory Structures
 - Figure 5.10-2 – Location of Prehistoric Sites
 - Figure 5.10-3 – Paleontological Resource Sensitive Areas
 - Appendix F – Cultural Resources Analysis, Study of Historical and Archaeological Resources for the Revised General Plan, City of Moreno Valley, Archaeological Associates, August 2003.
3. Title 9 – Planning and Zoning of the Moreno Valley Municipal Code
4. Moreno Valley Municipal Code Title 7 – Cultural Preservation
5. Cultural Resources Inventory for the City of Moreno Valley, Riverside County, California, prepared by Daniel F. McCarthy, Archaeological Research Unit, University of California, Riverside, October 1987 (*This document cannot be provided to the public due to the inclusion of confidential information pursuant to Government Code Section 6254.10.*)
6. Phase 1 Cultural and Paleontological Resources Report for the Farm Market, Riverside County, California, prepared by Chambers Group, November 8, 2019 (Appendix C).

VI. ENERGY – Would the project:

a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Response: A report estimating the energy usage was prepared by MD Acoustics (October 22, 2020) and is provided in Appendix D. Information from the CalEEMod 2016.3.2 Daily and Annual Outputs contained in the Farm Market Improvement Development Air Quality and Greenhouse Gas Impact Study (Appendix A) was utilized to generate estimates of the project’s electricity, natural gas, and fuel consumption for construction and operational aspects of the project.

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Electricity used for the project during construction and operations would be provided by the Moreno Valley Electric Utility (MVU), which serves more than 6,500 customers. MVU derives electricity from varied energy resources including: fossil fuels, hydroelectric generators, nuclear power plants, geothermal power plants, solar power generation, and wind farms. Natural gas would be provided to the project by Southern California Gas (SoCalGas). Project-related vehicle trip energy consumption will be predominantly gasoline and diesel fuel. Gasoline (and other vehicle fuels) are commercially provided commodities and would be available to the project patrons and employees via commercial outlets.

Project-related construction would represent a “single-event” electric energy and fuel demand and would not require on-going or permanent commitment of energy or diesel fuel resources for this purpose. Additionally, the amount of energy and fuel use anticipated by the project’s construction activities would be typical for the type of construction proposed because there are no aspects of the project’s proposed construction process that are unusual or energy-intensive, and project construction equipment would conform to the applicable CARB emissions standards, acting to promote equipment fuel efficiencies. CCR Title 13, Title 13, Motor Vehicles, Section 2449(d)(3) Idling, limits idling times of construction vehicles to no more than 5 minutes, thereby precluding unnecessary and wasteful consumption of fuel due to unproductive idling of construction equipment. Enforcement of idling limitations is realized through periodic site inspections conducted by City building officials, and/or in response to citizen complaints.

Once constructed, operations of the proposed food mart, gas station, retail and restaurant facility and associated maintenance activities would result in the consumption of natural gas and electricity. Energy use in buildings is divided into energy consumed by the built environment and energy consumed by uses that are independent of the construction of the building such as plug-in appliances. In California, the California Building Standards Code Title 24 governs energy consumed by the built environment, mechanical systems, and some types of fixed lighting. Non-building energy use, or “plug-in” energy use can be further subdivided by specific end-use (refrigeration, cooking, appliances, etc.).

Tables 3 through 9 in Appendix D as well as the conclusions of the report identifies that neither construction nor operation of the project would result in wasteful, inefficient, or unnecessary consumption of energy, or wasteful use of energy resources. Furthermore, the energy demands of the project can be accommodated within the context of available resources and energy delivery systems. The project would therefore not cause or result in the need for additional energy producing or transmission facilities. The project would not engage in wasteful or inefficient uses of energy and aims to achieve energy conservations goals within the State of California.

Therefore, there is a less than significant impact, and no mitigation is required.

b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Response: Federal and State agencies regulate energy use and consumption through various means and programs. On the federal level, the United States Department of Transportation, the United States Department of Energy, and the United States Environmental Protection Agency are three federal agencies with substantial influence over energy policies and programs. On the state level, the PUC and the California Energy Commissions (CEC) are two agencies with authority over different aspects of energy.

The Project has been designed in compliance with California’s Energy Efficiency Standards and 2019 CALGreen Standards. These measures include but are not limited to the use of water conserving plumbing, the use of LED lighting, and water-efficient irrigation systems. The project seeks to comply with all applicable State standards for energy efficiency, therefore, does not conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

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Therefore, there is a less than significant impact, and no mitigation is required.

Sources:

1. Moreno Valley General Plan, adopted July 11, 2006
 - Chapter 7 – Conservation Element – Section 7.6 – Energy Resources
2. Final Environmental Impact Report City of Moreno Valley General Plan, certified July 11, 2006
3. Title 9 – Planning and Zoning of the Moreno Valley Municipal Code
4. Farm Market Improvement Development– CEQA Energy Review, City of Moreno Valley, CA, prepared by MD Acoustics, February 24, 2021 (Appendix D).

VII. GEOLOGY AND SOILS – Would the project:

a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury or death involving:

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to https://www.conservation.ca.gov/cgs/Documents/SP_042.pdf	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Response: The Project is located in Southern California, a seismically active area and susceptible to the effects of seismic activity include rupture of earthquake faults. The project is not located on or near a Alquist-Priolo Earthquake fault. The closest known active earthquake fault with a documented location is the San Jacinto Fault Zone located approximately 1.9 miles to the northeast. In addition, other relatively close active faults include the San Andreas fault located approximately 13.5 miles to the northeast, the Elsinore fault located approximately 21.4 miles to the southwest, and the Cucamonga fault located approximately 24 miles to the north.

Therefore, there is a less than significant impact, and no mitigation is required.

ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Response: As stated in the Response to VII(a)(i), the project is located in Southern California, which is a seismically active area. However, the project will be designed in accordance with the most current California building codes that are designed to reduce structural impacts from earthquakes.

Therefore, there is a less than significant impact, and no mitigation is required.

iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Response: Liquefaction occurs when shallow, fine to medium-grained sediments saturated with water are subjected to strong seismic ground shaking. It generally occurs when the underlying water table is 50 feet or less

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<p>below the surface. The geotechnical report prepared for the project (Appendix E), indicates that groundwater in the project vicinity is approximately 100 to 145 feet below ground surface.</p> <p>Therefore, there is a less than significant impact, and no mitigation is required.</p>				
<p>iv) Landslides?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<p>Response: The elevation on the project site ranges from approximately 1,594 to 1,604 feet above mean sea level, is generally flat with no areas of significant topographic relief, and slopes gently away from the center. The project is not located in an area on or near foothills, and there are no hillsides adjacent to the project.</p> <p>Therefore, there is no impact.</p>				
<p>b) Result in substantial soil erosion or the loss of topsoil?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>Response: Construction activities associated with the project would involve earth movement and the exposure of soil, which would temporarily increase erosion susceptibility. However, the project would also be required to adhere to standard regulatory requirements, including, but not limited to, requirements imposed by the City's National Pollutant Discharge Elimination System (NPDES) Municipal Stormwater Permit (State Water Resources Control Board Order No. 2012-0011- DWQ) and a project-specific Water Quality Management Plan (WQMP) that includes Best Management Practices (BMPs) to minimize water pollutants including sedimentation in stormwater runoff.</p> <p>Therefore, there is a less than significant impact, and no mitigation is required.</p>				
<p>c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>Response: Refer to the Response for VII(b) above for a discussion of hazards associated with liquefaction and landslide hazards. As noted, there is no potential for landslide or liquefaction.</p> <p>The geotechnical analysis (Appendix E) noted that the project site, and likely neighboring parcels, is underlain by an approximate 2-foot thick layer of undocumented fill materials overlying alluvial materials which were found to have a potential for hydro-collapse in the upper 10 to 12 feet. The report indicated that that the existing fill materials and upper hydro-collapsible alluvial soils will not provide uniform and/or adequate support for the proposed development. Therefore, the engineering plans include a requirement for a compacted fill mat that will be constructed beneath footings and slabs. The construction of this compacted fill mat will allow for the removal of the existing, uncontrolled fills and upper unsuitable alluvium. The geotechnical analysis indicated that all on-site soils should be suitable for use as engineered compacted fill. Removals on the order of 10 to 12 feet are anticipated to be required within the proposed building pad areas, while removals on the order of 2 to 4 feet are expected to be necessary within parking, driveway, and flatwork areas. The geotechnical report noted that this same collapsible soil lens was also discovered during the construction of the original building in 2012. The same method of removal of the soils and replacement with engineered fill was used in the construction of the original building.</p>				

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<p>Therefore, because no aspects of the proposed project could increase the likelihood of landslides, lateral spreading, subsidence, liquefaction, impacts would be less than significant.</p>				
<p>The proposed project includes excavation and recompaction of the potential hydrocollapsible soils within the building pads which will reduce impacts from an unstable soil unit.</p>				
<p>Therefore, there is a less than significant impact, and no mitigation is required.</p>				
<p>d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>Response: The subsurface explorations and laboratory testing conducted as part of the geotechnical analysis (Appendix E), the site surficial soils primarily consist of lean clay with sand and silty sand with trace of clay that possess a low expansion potential. The project design and engineering is required to meet all applicable building codes, including those that apply to low expansive soils, including in Foundation Design, Building Area Slab-on-Grade, and Exterior Flatwork.</p> <p>Therefore, there is a less than significant impact, and no mitigation is required.</p>				
<p>e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>Response: The project does not propose to install any septic tanks or alternative wastewater disposal systems.</p> <p>Therefore, there is no impact.</p>				
<p>f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>Response: The project is situated within the northeastern portion of the Peninsular Ranges Geomorphic Province of Southern California. This province incorporates several northwest trending mountain ranges. Lying between these small ranges are a series of valleys and basins, including the Perris Plain where the project is located. While the floor of the Perris Plain is relatively flat, it is dotted with remnant hills composed of rocks that are highly resistant to erosion. This erosion has resulted in the covering of a thin to thick veneer of various ages of alluvial fan materials across the flank of the hills and out into the adjoining valley floor.</p> <p>A Phase 1 Cultural and Paleontological Resources report was prepared for the project site (Appendix C). The paleontological resources study for the project included a literature and records search conducted by staff at the Western Science Center that included the project site and an additional 1-mile radius. This search included a review of geological maps covering the project footprint to determine the fossil-bearing rock units underlying the project area. The objective of this records search was to identify fossil specimens or unique geological formations reported within the project area or surrounding 1-mile vicinity. Research also included a review of published and unpublished reports relevant to the paleontology and geology of the project area.</p>				

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<p>The results indicate the geologic units underlying the project area are entirely composed of young alluvial fan deposits from the Late Pleistocene to Holocene period. Pleistocene alluvial units are considered to be of high sensitivity for paleontological potential.</p> <p>The Western Science Center reported no fossil localities on the project site or within a 1 mile radius. However, there are numerous fossil localities within 2 miles of the project site that presented paleontological finds within similar alluvial mapped units, including those associated with the Aldi Distribution Project in Moreno Valley. Fossils recovered from the Aldi Distribution Project included specimens associated with large Pleistocene fauna including Giant Ground Sloth (Appendix C).</p> <p>Because the site is underlain by young alluvial fan deposits of the Late Pleistocene to Holocene that are considered paleontologically sensitive, the Phase 1 report recommended that construction excavations be spot checked to determine the presence or absence of potential paleontological resources. Therefore, implementation of Mitigation Measure GEO-1 is required to reduce impacts to less than significant.</p> <p style="padding-left: 40px;">GEO-1: A qualified paleontologist shall be retained to spot check construction excavations that would impact Late Pleistocene to Holocene units. The paleontologist will recommend increasing or decreasing monitoring activities based on the sub-surface findings.</p> <p>Therefore, there is a less than significant impact with the implementation of Mitigation Measure GEO-1.</p> <p>Sources:</p> <ol style="list-style-type: none"> 1. Moreno Valley General Plan, adopted July 11, 2006 <ul style="list-style-type: none"> • Chapter 6 – Safety Element – Section 6.5 – Geologic Hazards <ul style="list-style-type: none"> - Figure 6-3 – Geologic Faults & Liquefaction • Chapter 7 – Conservation Element – Section 7.4 -- Soils 2. Final Environmental Impact Report City of Moreno Valley General Plan, certified July 11, 2006 <ul style="list-style-type: none"> • Section 5.6 – Geology and Soils <ul style="list-style-type: none"> - Figure 5.6-1 – Geology - Figure 5.6-2 – Seismic Hazards 3. Title 9 – Planning and Zoning of the Moreno Valley Municipal Code 4. Moreno Valley Municipal Code Chapter 8.21 – Grading Regulations 5. Local Hazard Mitigation Plan, City of Moreno Valley Fire Department, adopted October 4, 2011, amended 2017, http://www.moval.org/city_hall/departments/fire/pdfs/haz-mit-plan.pdf <ul style="list-style-type: none"> • Chapter 4 – Earthquake <ul style="list-style-type: none"> - Figure 4-1 – Right-Lateral Strike -Slip Fault - Figure 4-1.1 – Moreno Valley Geologic Faults and Liquefaction 2016 - Figure 4-1.2 – Moreno Valley Area Ground Shaking Map • Chapter 8 – Landslide <ul style="list-style-type: none"> - Figure 8-1 – Moreno Valley Slope Analysis 2016 6. Emergency Operations Plan, City of Moreno Valley, March 2009, http://www.moval.org/city_hall/departments/fire/pdfs/mv-eop-0309.pdf <ul style="list-style-type: none"> • Threat Assessment 1 – Major Earthquakes <ul style="list-style-type: none"> - Figure 9 – Types of Faults - Figure 10 – Earthquake Faults - Figure 11 – Comparison of Richter Magnitude and Modified Mercalli Intensity - Figure 12 – Magnitude 4.5 or Greater Earthquake Map 				

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- Figure 13 – Geologic Faults and Liquefaction
- 7. Phase 1 Cultural and Paleontological Resources Report for the Farm Market, Riverside County, California, prepared by Chambers Group, November 8, 2019 (Appendix C).
- 8. Preliminary Geotechnical Investigation Proposed Commercial Development, 14058 Redlands Boulevard, Moreno Valley, California prepared by LOR Geotechnical, November 21, 2018 (Appendix E).

VIII. GREENHOUSE GAS EMISSIONS – Would the project:

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Response: Gases that trap heat in the atmosphere are often referred to as greenhouse gases (GHG). These gases are released into the atmosphere by both natural and anthropogenic (human) activity. Without the natural greenhouse gas effect, the earth’s average temperature would be approximately 61° Fahrenheit (F) cooler than it is currently. The cumulative accumulation of these gases in the earth’s atmosphere is considered to be the cause for the observed increase in the earth’s temperature.

Currently neither the CEQA statutes, OPR guidelines, nor the draft proposed changes to the CEQA Guidelines prescribe thresholds of significance or a particular methodology for performing an impact analysis; as with most environmental topics, significance criteria are left to the judgment and discretion of the Lead Agency. The SCAQMD has drafted an interim screening threshold of 3,000 Metric tons of carbon dioxide equivalent (MTCO_{2e}) per year for all land uses, which was used in the project’s greenhouse gas analysis (refer to Appendix A).

The greenhouse gas emissions from all phases of project construction equipment and worker vehicles are shown on Table 12 of Appendix A. The total construction emissions were amortized over a period of 30 years, per SCAQMD guidance, and are estimated at 7.8 metric tons of Carbon dioxide equivalent (CO_{2e}) per year. The results identify that the project will not generate greenhouse gas emissions that may have a significant impact on the environment.

Operational emissions occur over the life of the project. Table 13 of Appendix A identifies that the operational emissions for the project are 944.37 metric tons of CO_{2e} per year, which do not exceed the SCAQMD screening threshold for all land uses of 3,000 metric tons of CO_{2e} per year.

Therefore, there is a less than significant impact, and no mitigation is required.

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emission of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Response: A proposed project would have the potential to conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases. The applicable plans for the proposed project are the City of Moreno Valley Greenhouse Gas Analysis (adopted February 2012) and the City of Moreno Valley Energy Efficiency and Climate Action Strategy (adopted October 2012). The City of Moreno Valley has adopted these plans in order to assist the City in conforming to the GHG emissions reductions as mandated under AB 32.

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The SCAQMD's Tier 3 thresholds used Executive Order S-3-05 goal was used as the basis for deriving the screening level for this project. The California Governor issued Executive Order S-3-05, GHG Emission, in June 2005, which established the following reduction targets:

- 2010: Reduce greenhouse gas emissions to 2000 levels
- 2020: Reduce greenhouse gas emissions to 1990 levels
- 2050: Reduce greenhouse gas emissions to 80 percent below 1990 levels.

In 2006, the California State Legislature adopted AB 32, the California Global Warming Solutions Act of 2006. AB 32 requires CARB, to adopt rules and regulations that would achieve GHG emissions equivalent to statewide levels in 1990 by 2020 through an enforceable statewide emission cap which was phased in starting in 2012.

Projects whose emissions meet the threshold for compliance with Executive Order S-3-05, would also comply with the goals of AB 32 and the City of Moreno Valley Energy Efficiency and Climate Action Strategy. Additionally, if a project meets the current interim emissions targets/thresholds established by SCAQMD, the project would also be on track to meet the reduction target of 40 percent below 1990 levels by 2030 mandated by SB-32. Furthermore, all of the post 2020 reductions in GHG emissions are addressed via regulatory requirements at the State level and the project will be required to comply with these regulations as they come into effect.

At a level of 944.37 MTCO_{2e} per year, the GHG emissions of the proposed project do not exceed SCAQMD thresholds and are in compliance with the reduction goals of the City of Moreno Valley Energy Efficiency and Climate Action Strategy, AB-32 and SB-32. Therefore, the proposed project would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

Therefore, there is a less than significant impact, and no mitigation is required.

Sources:

1. Moreno Valley General Plan, adopted July 11, 2006
2. Final Environmental Impact Report City of Moreno Valley General Plan, certified July 11, 2006
3. Title 9 – Planning and Zoning of the Moreno Valley Municipal Code
4. California's 2017 Climate Change Scoping Plan, prepared by the California Air Resources Board, November 2017, https://www.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf, accessed April 24, 2019
5. Air Quality Greenhouse Gas Impact Study, 10/9/2019, prepared by MD Acoustics (Appendix A).

IX. HAZARDS AND HAZARDOUS MATERIALS – Would the project:

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Response: A hazardous material is a substance that is toxic, flammable/ignitable, reactive, or corrosive. Extremely hazardous materials are substances that show high or chronic toxicity, carcinogenic, bioaccumulative properties, persistence in the environment, or that are water reactive. Improper use, storage, transport, and disposal of hazardous materials and waste may result in harm to humans, surface and groundwater degradation, air pollution, fire, and explosion.

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<p>Construction of the proposed project would involve the use of construction-related chemicals. These include but are not limited to hydraulic fluids, motor oil, grease, runoff, and other related fluids and lubricants. The construction activities would involve the disposal and recycling of materials, trash, and debris. The City's General Plan Safety Element addresses potential hazards in the City and identifies goals and policies to reduce risks and damages associated with hazards, including disposal of hazardous materials due to human activities.</p> <p>The project includes the construction and operation of a new fueling station with underground fuel storage tanks. Diesel and regular gasoline would be transported to the site to fill the new tanks. However, the transport of fuel to storage tanks at retail fuel centers is a routine procedure and is regulated by various state and federal regulations. The storage of automobile fuel in underground storage tanks will be carried out in accordance with California Code of Regulations Title 23, Division 3, Chapter 16, California Health and Safety Code Section (25280 – 25299.8) and Riverside County Ordinance 617.</p> <p>Compliance with local, state, and federal requirements for proper storage and handling of hazardous materials, includes development of a hazardous materials business plan. that would identify Best Management Practices to minimize impacts in the event of a spill or release of hazardous materials used on site. These include, but are not limited to routine cleaning, inspection, and maintenance, development of procedures to mitigate spills, provide signage in construction areas, proper storage and handling procedures, and providing secondary containment of liquid materials.</p> <p>Compliance with all local, State and federal regulations related to hazardous materials use and transport would reduce potential hazards to the public or the environment through the routine transport, use, or disposal of hazardous materials.</p> <p>Therefore, there is a less than significant impact, and no mitigation is required.</p>				
<p>b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>Response:</p> <p><u>Short-Term Construction Impacts</u></p> <p>Construction activities would require the temporary use of hazardous substances, such as fuel, lubricants, and other petroleum-based products for operation of construction equipment as well as oil, solvents, or paints. As a result, the proposed project could result in the exposure of persons and/or the environment to an adverse environmental impact due to the accidental release of a hazardous material. However, the transportation, use, and handling of hazardous materials would be temporary and would coincide with the short-term project construction activities. Further, these materials would be handled and stored in compliance with all with applicable federal, state, and local requirements, any handling of hazardous materials would be limited to the quantities and concentrations set forth by the manufacturer and/or applicable regulations, and all hazardous materials would be securely stored in a construction staging area or similar designated location within the project site. In addition, the handling, transport, use, and disposal of hazardous materials must comply with all applicable federal, state, and local agencies and regulations, including the Department of Toxic Substances Control; Occupational Health and Safety Administration (OSHA); Caltrans; and the County Health Department - Hazardous Materials Management Services.</p>				

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<p>With the compliance with local, state, and federal regulations short-term construction impacts associated with the handling, transport, use, and disposal of hazardous materials would be less than significant.</p> <p><u>Long-Term Operational Impacts</u></p> <p>Operations of the gas station would include the use, transport and regular handling of gasoline to refill USTs, refilling USTs and pumping gasoline to fuel dispensers, and regular use of the fuel dispensers by motorists. As a result, the proposed project could result in potentially adverse impacts to people and the environment as a result of hazardous materials being accidentally released into the environment (e.g. operators or motorists could spill gasoline while refueling, USTs or pipes dispensing fuel from USTs could leak, automobiles could crash into fuel dispensers, or motorists could refuel while having engine running causing a fire hazard).</p> <p>However, the proposed project would be required to operate in compliance with all with applicable federal, state, and local requirements which lessen the potential for these impacts. Some of these regulations include but are not limited to:</p> <ul style="list-style-type: none"> • SWRCB Health and Safety Code, Section 25280 - leak detection systems and secondary containment, groundwater monitoring, etc. • EPA Efficacy requirements - require that leak detection methods be able to detect certain leak rates and that they also give the correct answer consistently. • Various federal, state, and local regulations, that govern underground storage tanks and associated fuel delivery infrastructure (i.e., fuel dispensers) • High-efficiency Phase I and Phase II enhanced vapor recovery (EVR) systems to capture and control gasoline fumes. • Various federal, state, and local regulations that govern the handling, transport, use, and disposal of hazardous materials. <p>There are no drainages or sensitive environmental resources on the project site or in the project vicinity. Compliance with all local, State and federal regulations related would reduce potential hazards to the public and the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.</p> <p>Therefore, there is a less than significant impact, and no mitigation is required.</p>				
<p>c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>Response: The proposed project is not within one-quarter mile of any school.</p> <p>Therefore, there is no impact.</p>				

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<p>d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>Response: According to the Department of Toxic Substances Control GeoTracker database, there are no hazardous materials sites on or adjacent to the project site. Therefore, the proposed project would not create a significant hazard to the public because the project is not located on a hazardous waste site.</p> <p>Therefore, there is no impact.</p>				
<p>e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>Response: No airports exist within 2 miles of the project site.</p> <p>Therefore, there is no impact.</p>				
<p>f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>Response: The project includes minor street improvements at the site entrance to widen driveways. Minor, temporary lane closures may occur during construction of these project components. All lane closures will be performed consistent with local and State guidelines for construction-related road work which identifies procedures for emergency vehicles access.</p> <p>The project is located on the corner of two major roadways, and site access will be via driveways off each road. Interior site circulation is adequate to prevent traffic backup into the roadways.</p> <p>Adherence to local and State guidelines for construction-related lane closures in addition to the site design will not impair or interfere with an adopted emergency response plan or emergency evacuation plan.</p> <p>Therefore, there is a less than significant impact, and no mitigation is required.</p>				
<p>g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>Response: The project is located in an urban area, and there are no wildlands in the vicinity of the project. The new facilities will be constructed in accordance to all local, State and federal regulations regarding fire safety devices, including but not limited to fire sprinklers in the buildings and emergency shut-off valves for the fuel pumps.</p> <p>Therefore, there is no impact.</p>				

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Sources:

1. Moreno Valley General Plan, adopted July 11, 2006
 - Chapter 6 – Safety Element – Section 6.2.8 – Wildland Urban Interface
 - Chapter 6 – Safety Element – Section 6.9 – Hazardous Materials
 - Chapter 6 – Safety Element – Section 6.10 – Air Crash Hazards
 - Figure 6-5 – Air Crash Hazards
2. Final Environmental Impact Report City of Moreno Valley General Plan, certified July 11, 2006
 - Section 5.5 – Hazards and Hazardous Materials
 - Figure 5.5-1 – Hazardous Materials Sites
 - Figure 5.5-2 – Floodplains and High Fire Hazard Areas
 - Figure 5.5-3 – City Areas Affected by Aircraft Hazard Zones
3. Title 9 – Planning and Zoning of the Moreno Valley Municipal Code
4. March Air Reserve Base (MARB)/March Inland Port (MIP) Airport Land Use Compatibility Plan (ALUCP) on November 13, 2014, (<http://www.rcaluc.org/Portals/13/17%20-%20Vol.%201%20March%20Air%20Reserve%20Base%20Final.pdf?ver=2016-08-15-145812-700>)
5. Local Hazard Mitigation Plan, City of Moreno Valley Fire Department, adopted October 4, 2011, amended 2017, http://www.moval.org/city_hall/departments/fire/pdfs/haz-mit-plan.pdf
 - Chapter 5 – Wildland and Urban Fires
 - Figure 5-2 – Moreno Valley High Fire Area Map 2016
 - Chapter 12 – Dam Failure/Inundation
 - Figure 12-2 Moreno Valley Evacuation Routes Map 2015
 - Chapter 13 – Pipeline
 - Figure 13-1 – Moreno Valley Pipeline Map 2016
 - Chapter 14 – Transportation
 - Figure 14-1.1 – Moreno Valley Air Crash Hazard Area Map 2016
 - Chapter 16 – Hazardous Materials Accident
 - Moreno Valley Hazardous Materials Site Locations Map 2016
6. Emergency Operations Plan, City of Moreno Valley, March 2009, http://www.moval.org/city_hall/departments/fire/pdfs/mv-eop-0309.pdf
 - Hazard Mitigation and Hazard Analysis
 - Threat Assessment 2 – Hazardous Materials
 - Threat Assessment 3 – Wildfire
 - Threat Assessment 6 – Transportation Emergencies
 - Figure 17 – Air Crash Hazards
7. California Manual on Uniform Traffic Control Devices, 2016
8. California Code of Regulations Title 23, Division 3, Chapter 16
9. California Health and Safety Code Section (25280 – 25299.8)
10. Riverside County Ordinance 617

X. HYDROLOGY AND WATER QUALITY – Would the project:

a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Response:*Groundwater*

The project lies in the Perris North Groundwater Basin where groundwater depth ranges from approximately 100 feet to 150 feet below ground surface (Appendix D). The California State Department of Water Resources (DWR) has estimated the groundwater basins in the vicinity of the project to have capacity for approximately one million acre-feet of water. It is estimated that the basins store approximately 620,000 acre-feet (AF) of water.

The City primarily relies upon imported water from the Eastern Municipal Water District (EMWD) for its domestic supply. Slightly over 3,000 AF/YR is produced from the Perris and Perris South subbasins and is blended with imported water for use in the western portions of the EMWD service area.

Surface Water/Stormwater

The project site is located within the Santa Jacinto Valley Sub-watershed (HCU8) portion of the Santa Ana River Watershed. The site is situated north of San Jacinto River approximately 10 miles north of its confluence with Perris Valley Channel. The topography of the site is generally flat with elevations ranging from approximately 1,594 to 1,604 feet above mean sea level feet. The site is a developed parcel located within the City of Moreno Valley. The existing site surface flows southwest onto Redlands Blvd.

Moreno Valley, Riverside County and 23 other cities and agencies obtained a joint permit National Pollutant Discharge Elimination System (NPDES) permit from the Regional Water Quality Control Board-Santa Ana Region (SARWQCB) to control pollutants in runoff.

The RWQCB also requires that dischargers whose construction projects disturb one (1) or more acres of soil or whose projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity Construction General Permit Order 2009-0009-DWQ. Construction activity subject to this permit includes clearing, grading and disturbances to the ground such as stockpiling, or excavation. The Construction General Permit requires the development of a Storm Water Pollution Prevention Plan (SWPPP) by a certified Qualified SWPPP Developer (QSD). The SWPPP would include BMPs to be implemented during and after project construction to minimize erosion and sedimentation of downstream watercourses. The proposed project is anticipated to disturb approximately 1.5 acres and therefore would be subject to preparation of a SWPPP.

Proposed Project Stormwater Management

The proposed site development storm runoff patterns will mimic the existing drainage patterns. Approximately 8,400 sf of existing concrete parking lot and 9,750 sf of existing landscaping will be removed and reconfigured. Approximately 3,860 sf of landscaping, 6,480 sf of existing pavement and 6,100 sf of existing buildings will remain. The proposed project will have approximately 49,201 sf of impervious area and 20,682 sf of pervious landscaping. The existing site surface flows southwest onto Redlands Blvd. In compliance with the regional water quality ordinance for the Santa Ana Watershed, this project is classified as a significant redevelopment project, and must implement water quality Best Management Practices (BMPs) for the entire site.

Therefore all run-off from the portions of the site that are remaining undisturbed will follow the existing drainage path to the south west, and will be captured by a new grated inlet and direct this run-off underground easterly to a new underground storage vault where it will comingle with the proposed development run-off. New improvements will direct run-off via surface flow and underground drain lines south east to a proposed underground storage vault that is connected to a Modular Wetland System (MWS). The MWS is a water quality treatment system consisting of a pre-treatment chamber, a media cartridge pre-filter, a wetland biofiltration chamber, and an outlet control device. The MWS provides water quality treatment of captured flows through several physical, biological, and chemical unit processes. The system is housed in a precast concrete vault and

ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<p>stormwater will be directed into a grate inlet into the MWS. The MWS is approved by the Santa Ana Regional Water Quality Control Board as an effective means of pre-treating water prior to release into the city's municipal stormwater system.</p> <p>The MWS is designed to capture the stormwater volume from the entire site. Ultimately, all flows will join the existing City storm drain system within Redlands Blvd, where it will follow the natural drainage path of the San Jacinto River Basin to Lake Elsinore, which is classified as a regional sump.</p> <p>Site drainage is shown in Figure 4.</p> <p><u>Short-Term Construction Impacts</u></p> <p>Construction of the project would require grading activities that could result in a temporary increase in erosion affecting the quality of storm water runoff. The project would be required to obtain a grading permit through the City as well as comply with the SWRCB's NPDES General Construction Activities Permit. The applicant would develop, implement and maintain a SWPPP to control the discharge of stormwater pollutants including sediments associated with construction activities. This stormwater permit would be administered by the SWRCB. Therefore, based on compliance with federal, state, and local regulations, short-term construction-related impacts associated with water quality would be less than significant.</p> <p><u>Long-Term Operational Impacts</u></p> <p>Under the existing conditions, site drainage is currently by sheet flow onto the adjacent bordering streets and into the local storm-drain system. Although the project site is largely flat, stormwater typically drains to the southeast corner of the lot toward the existing lot entrance. The site drains toward the established storm drainage system located on bordering streets. The project site does not presently contain water quality BMPs.</p> <p>The developed site drainage pattern would remain generally unchanged from the existing condition. Surface runoff from the under-canopy fueling area would be isolated and treated with an oil/water separator prior to discharge to the storm system. Non-canopy surface runoff from the rest of the project site would be collected by a bioretention cell/rain garden located in the southeastern corner of the project site. The bioretention cell/rain garden is a BMPs that would retain and treat stormwater before it is discharged to the on-site storm drainage system, thereby reducing the off- site discharge of pollutants and sediments. From these points, flows would be conveyed through the existing City storm drainage system. Additionally, the proposed project is not anticipated to result in a change of impervious area since the site is already paved. As such, stormwater is expected to be collected, treated, and conveyed in a similar - if not more improved - fashion to the existing setting. Therefore, long-term operational impacts associated with water quality would be less than significant.</p> <p>Adherence to local and State regulations during construction, as well as the stormwater controls that have been incorporated into the site design for operations, the project will not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality.</p> <p>Therefore, there is a less than significant impact, and no mitigation is required.</p>				
<p>b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<p>Response: The geotechnical analysis (Appendix E) prepared for the proposed project identified that groundwater between 100 ft. and 150 ft. below ground surface. Since the lowest point of the proposed project is estimated to be the building excavation at approximately 12 feet below ground surface, the proposed project is not anticipated to interfere with groundwater supplies or deplete groundwater supplies. Further, the project is and would continue to be composed largely of paved and other impervious surfaces. Approximately 8,400 sf of existing concrete parking lot and 9,750 sf of existing landscaping will be removed and reconfigured. Approximately 3,860 sf of landscaping, 6,480 sf of existing pavement and 6,100 sf of existing buildings will remain. The proposed project will have approximately 49,201 sf of impervious area and 20,682 sf of pervious landscaping. As a result, groundwater would not be recharged by the on-site improvements. There currently are, and would continue to be, few opportunities on the project site for infiltration of stormwater and groundwater recharge.</p> <p>Domestic water use is provided by the EMWD which receives water from the State Water Project, not groundwater.</p> <p>Therefore, there is a less than significant impact, and no mitigation is required.</p>				
<p>c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:</p> <p>i) Result in substantial erosion or siltation on- or off-site?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>Response: Refer to response for X(a). There would be an increase in impervious surface from the site development. However, adherence to the construction SWPPP and stormwater controls that are part of the operational design, as previously described, would ensure that site construction and operations would not result in erosion or siltation on- or off-site.</p> <p>Therefore, there is a less than significant impact, and no mitigation is required.</p>				
<p>ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>Response: Refer to response for X(a). There would be an increase in impervious surface from the site development. However, the project has been designed with operational controls designed to capture the stormwater volume from the entire site. Therefore, while the rate and amount of surface runoff will increase due to the increase in impervious surface, the site is designed in a manner that would not result in flooding on- or offsite.</p> <p>Therefore, there is a less than significant impact, and no mitigation is required.</p>				
<p>iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>Response: Refer to response for X(a). There would be an increase in impervious surface from the site development. However, the project has been designed with operational controls designed to capture the stormwater from the entire site, filter it and direct drainage into the City's storm drain. Therefore, the project would</p>				

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ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<p>not create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.</p> <p>Therefore, there is a less than significant impact, and no mitigation is required.</p>				
iv) Impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>Response: The project site does not contain any natural drainages or waterways. The Flood Insurance Rate Maps issued by the Federal Emergency Management Agency (FEMA) indicate the project site is located within Zone X (shaded). Zone X is defined as an area of moderate and minimal flood risk. Shaded areas are characterized as moderate risk within the 0.2-percent-annual-chance floodplain, areas of 1-percent-annual-chance flooding where average depths are less than 1 foot, areas of 1-percent-annual-chance flooding where the contributing drainage area is less than 1 square mile, and areas protected from the 1-percent-annual-chance flood by a levee. No aspect of the project would change the FEMA designation or impede or redirect flood flows.</p> <p>Therefore, there is no impact.</p>				
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>Response: The proposed project is located inland, more than 40 miles northeast of the Pacific Ocean. According to the Federal Emergency Management Agency (FEMA) flood maps, the project site is located outside the 100-year floodplain, as mapped by FEMA (site is within Flood Zone X) and would not significantly impede or redirect flood flows. There are no bodies of water in the vicinity of the site that could experience seiche conditions.</p> <p>Therefore, there is no impact.</p>				
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>Response: Refer to response for X(a). The proposed project would comply with the City's MS4 permit, as noted above. Implementation of project BMPs from the SWPPP during proposed construction activities would reduce any impacts associated with water quality to less than significant. In addition, the proposed project does not include any activities that will interfere with any groundwater management plan as all construction would occur entirely within a portion of the site.</p> <p>Therefore, there is a less than significant impact, and no mitigation is required.</p>				
<p>Sources:</p> <ol style="list-style-type: none"> Moreno Valley General Plan, adopted July 11, 2006 <ul style="list-style-type: none"> Chapter 6 – Safety Element – Section 6.7 – Water Quality <ul style="list-style-type: none"> Figure 6-4 – Flood Hazards Chapter 7 – Conservation Element – Section 7.5 – Water Resources <ul style="list-style-type: none"> Figure 7-1 Water Purveyor Service Area Map Final Environmental Impact Report City of Moreno Valley General Plan, certified July 11, 2006 <ul style="list-style-type: none"> Section 5.5 – Hazards and Hazardous Materials 				

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ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<ul style="list-style-type: none"> - Figure 5.5-2 – Floodplains and High Fire Hazard Areas • Section 5.7 – Hydrology and Water Quality <ul style="list-style-type: none"> - Figure 5.7-1 – Storm Water Flows and Major Drainage Facilities - Figure 5.7-2 – Groundwater Basins 3. Title 9 – Planning and Zoning of the Moreno Valley Municipal Code <ul style="list-style-type: none"> • Section 9.10.080 – Liquid and Solid Waste 4. Moreno Valley Municipal Code Chapter 8.12 – Flood Damage Prevention 5. Moreno Valley Municipal Code Chapter 8.21 – Grading Regulations 6. Eastern Municipal Water District (EMWD) Groundwater Reliability Plus, http://gwrplus.org/ 7. Eastern Municipal Water District (EMWD) 2015 Urban Water Management Plan 8. Preliminary Geotechnical Investigation Proposed Commercial Development, 14058 Redlands Boulevard, Moreno Valley, California prepared by LOR Geotechnical, November 21, 2018 (Appendix E). 9. Preliminary Hydrology Study, 14058 Redlands Blvd, Farm Market Expansion and Gas Station, prepared by WMB & Associates, July 2020 (Appendix F). 10. Preliminary Water Quality Management Plan, 14058 Redlands Blvd, Farm Market Expansion and Gas Station, prepared by WMB & Associates, July 2020. 				

XI. LAND USE AND PLANNING – Would the project:

a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Response: The project is located within the City limits. The project proposes to construct a 1,920 square-foot (sf) commercial building for retail, a 2,580 sf restaurant, and a gas station with eight fueling stations adjacent to an existing market that will be incorporated into the overall project. The project would not divide or otherwise affect any residential communities.

Therefore, there is no impact.

b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Response: The proposed project would develop further commercial uses on a parcel already developed with such uses and both designated and zoned for such uses. As a result, no conflicts would occur with any land use plan, policy, or regulation.

Therefore, there is no impact.

Sources:

1. Moreno Valley General Plan, adopted July 11, 2006
 - Chapter 2 – Community Development Element – Section 2.1 – Land Use
 - Figure 2-1 – Neighboring Lands Uses
 - Figure 2-2 – Land Use Map
 - Chapter 8 – 2014 – 2021 Housing Element
2. Final Environmental Impact Report City of Moreno Valley General Plan, certified July 11, 2006

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ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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- Section 5.12 – Population and Housing
 - Attachments #1 - #10 – Housing Sites Inventory
 - Exhibits A1 – A11, C, D, and E – Maps of Housing Sites
- 3. Title 9 – Planning and Zoning of the Moreno Valley Municipal Code

XII. MINERAL RESOURCES – Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Response: The California Department of Conservation, Division of Mines and Geology has not identified significant mineral resources within the City of Moreno Valley. The project site is not located on a known important mineral resource recovery site and is not currently being mined or has plans to be mined. Because the proposed project would expand on existing commercial uses at the site, there would be no change with respect to mineral resource extraction beyond existing conditions.

Therefore, there is no impact.

b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Response: As discussed in the response for XII(a), the project site is not located on a known mineral deposit and is not currently being mined or has plans to be mined. No land use plan that applies to the site designates it as a mineral resource recovery site.

Therefore, there is no impact.

Sources:

1. Moreno Valley General Plan, adopted July 11, 2006
 - Chapter 7 – Conservation Element – Section 7.9 – Mineral Resources
2. Final Environmental Impact Report City of Moreno Valley General Plan, certified July 11, 2006
 - Section 5.14 – Mineral Resources
3. Title 9 – Planning and Zoning of the Moreno Valley Municipal Code
 - Section 9.02.120 – Surface Mining Permits
4. Moreno Valley Municipal Code Section 8.21.020 A 7 – Permits Required
5. The Surface Mining and Reclamation Act of 1975 (SMARA, Public Resources Code, Sections 2710-2796), <https://www.conservation.ca.gov/dmr/lawsandregulations>

XIII. NOISE – Would the project result in:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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Response: Environmental noise is commonly measured in A-weighted decibels (dBA). A decibel (dB) is a unit of sound energy intensity. Sound waves, traveling outward from a source, exert a sound pressure level (commonly called a “sound level”) measured in dB. An A-weighted decibel (dBA) is a decibel corrected for the variation in frequency response that duplicates the sensitivity of human ears. Decibels are measured on a logarithmic scale. Generally, a 3 dBA increase in ambient noise levels represents the threshold at which most people can detect a change in the noise environment; an increase of 10 dBA is perceived as a doubling of loudness (refer to discussion in Appendix G).

The project parcel is bounded by Alessandro Blvd on the north, Redlands Blvd on the west, Kimberly Ave on the south, and existing residential on the east. Residential land uses closest to the project site include along the north side of Alessandro Blvd, along the south side of Kimberly Ave and along the eastern property boundary. A Noise Impact Study was prepared for the proposed project (Appendix G) that identified the existing noise levels and assessed the potential project-related construction and operations noise levels.

The City of Moreno Valley outlines its noise standards within its General Plan and in Section 11.80 of the City’s Municipal Code. Section 11.80.030 also identifies a list of exemptions and exceptions to the noise standards which includes construction and demolition, although it restricts construction noise to occur within specific hours.

Construction

Construction noise would be limited primarily to the use of the heavy equipment for initial site grading and excavating activities at the site, which will be short-term in nature, approximately two to three months. Construction will occur during the permissible hours as described in the City of Moreno Valley Noise Ordinance, Section 11.80.

The study in Appendix G identified that the residences along the east property boundary could be most affected by the construction noise. However, as previously identified noise impacts will be short term in nature and not of a level that result in a significant impact to the adjacent residential uses.

Therefore, there is a less than significant impact from construction, and no mitigation is required.

Operations

The 2,350 sf commercial building, to be utilized as a small retail store, and the 1,500 restaurant will be located along the eastern boundary of the site, approximately 10 feet from the existing fence, consistent with City of Moreno Valley development standards. The main entrances, deliveries and trash service to these facilities will occur at the front of building, which faces west. Therefore, no activities will occur between the back of the building and the eastern property boundary, adjacent to the residential land use.

Sensitive receptors that may be affected by project operational noise include existing residences to the north (on the north side of Alessandro Blvd), south (south side of Kimberly Ave), and east (adjacent to the project property boundary). The noise study in Appendix G modeled a total of seven adjacent receptors to evaluate the proposed project’s operational impact (refer to exhibits F through I in Appendix G). The noise study compared the Project’s operational noise levels to two different noise assessment scenarios: 1) Project Only operational noise level projections, 2) Project plus ambient noise level projections.

The results indicated that the primary source of the ambient noise for the project site and surrounding area is from traffic along Alessandro Blvd and Redlands Blvd. The ambient data confirmed that the existing noise levels do not exceed the City’s noise ordinance for residential uses (60 dBA Daytime and 55 dBA Nighttime). Therefore, the noise assessment utilized the ambient noise data as a basis and compare levels to said data.

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ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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Project operational noise was projected for each of the seven receptor locations assuming worst-case predicted daytime (7AM – 10PM) and worst case predicted nighttime (10 PM to 7 AM) scenarios. The analysis indicated that the change in noise levels falls generally under 2 dBa, or within the category of “not perceptible” for all locations studied (refer to tables 4 through 6 in Appendix G).

Therefore, there is a less than significant impact from construction, and no mitigation is required.

b) Generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Response: Construction activities can produce vibration that may be felt by adjacent land uses. The construction of the proposed project would not require the use of equipment such as pile drivers, which are known to generate substantial construction vibration levels. The primary vibration source during construction may be from a bulldozer. The noise study (Appendix G) indicates that at a distance of 15 feet (distance residential structure from the property line), a large bulldozer would yield a worst-case 0.156 PPV (in/sec) which may be perceptible for short periods of time during grading along the eastern property line of the project site but is below any threshold of damage.

Vibration is not anticipated to be generated as a result of operations.

Therefore, there is a less than significant impact, and no mitigation is required.

c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Response: The Project site is not within the vicinity of a private airstrip, not within two miles of a public airport or public use airport and is not within an airport land use plan.

Therefore, there is no impact.

Sources:

1. Moreno Valley General Plan, adopted July 11, 2006
 - Chapter 6 – Safety Element – Section 6.4 – Noise
 - Figure 6-2 – Buildout Noise Contours
2. Final Environmental Impact Report City of Moreno Valley General Plan, certified July 11, 2006
 - Section 5.4 – Noise
 - Figure 5.4-1 – March Air Reserve Base Noise Impact Area
 - Figure 5.4-2 – Buildout Noise Contours – Alternative 1
 - Figure 5.4-3 -- Buildout Noise Contours – Alternative 2
 - Figure 5.4-4 -- Buildout Noise Contours – Alternative 3
 - Appendix D – Noise Analysis, Wieland Associates, Inc., June 2003.
3. Title 9 – Planning and Zoning of the Moreno Valley Municipal Code
 - Section 9.10.140 Noise and Sound

ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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4. Moreno Valley Municipal Code Chapter 11.80 Noise Regulations
5. March Air Reserve Base (MARB)/March Inland Port (MIP) Airport Land Use Compatibility Plan (ALUCP) on November 13, 2014, (<http://www.rcaluc.org/Portals/13/17%20-%20Vol.%201%20March%20Air%20Reserve%20Base%20Final.pdf?ver=2016-08-15-145812-700>)
6. Farm Market Improvement Development Noise Impact Study, City of Moreno Valley, prepared by MD Acoustics, 10/3/2019 (Appendix G).

XIV. POPULATION AND HOUSING – Would the project:

a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of road or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Response: The City of Moreno Valley was incorporated on December 3, 1984 and thereafter the population soared, reaching 118,779 in 1990. For part of that period, it was the fastest growing city in the country. Moreno Valley is the second largest city in Riverside County with a population of 193,365 in the year 2010 according to the US Census.

To avoid as serving as bedroom communities for adjacent countries, Riverside County jurisdictions, including Moreno Valley, are working to attract new businesses to provide employment opportunities for local residents. This also helps promote a more balanced jobs/housing ratio, reduces the need for long commutes and improves the local air quality and quality of life in general.

The proposed project is commercial in nature and does not propose new homes. The only roads associated with project implementation are parking areas, a turning lane for site access, and fuel pumps. The project proposes to add restaurant and retail space, which will promote an additional approximately six to seven jobs. Therefore, the proposed project would not induce population growth.

Therefore, there is a less than significant impact, and no mitigation is required.

b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Response: No existing housing would be displaced as the project site is commercial in nature, would remain as such upon project implementation, and both designated and zoned for commercial uses such as the one proposed.

Therefore, there is no impact.

Sources:

1. Moreno Valley General Plan, adopted July 11, 2006
 - Chapter 2 – Community Development Element – Section 2.1 – Land Use
 - Figure 2-1 – Neighboring Lands Uses
 - Figure 2-2 – Land Use Map
 - Chapter 8 – 2014 – 2021 Housing Element

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ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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- 2. Final Environmental Impact Report City of Moreno Valley General Plan, certified July 11, 2006
 - Section 5.12 – Population and Housing
 - Attachments #1 - #10 – Housing Sites Inventory
 - Exhibits A1 – A11, C, D, and E – Maps of Housing Sites
- 3. Title 9 – Planning and Zoning of the Moreno Valley Municipal Code

XV. PUBLIC SERVICES – Would the project:

a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

i) Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Response: The Riverside County Fire Department provides fire protection, fire prevention and emergency medical aid to the City of Moreno Valley. The closest fire station to the project is Station 58, located at 28040 Eucalyptus Avenue, approximately 2.5 miles northwest of the project site. The proposed project would not have a significant impact on fire response times because the project is located within the existing service area.

The operation of the proposed fueling station would require refueling of the tanks. The Riverside County Department of Environmental Health Hazardous Materials Emergency Response Team (DEH HMERT) is responsible for responding to issues related to hazardous materials including fuel. A fueling station already exists to the north of the project site, therefore, hazardous materials response is already anticipated for the project vicinity, and no new facilities are required as a result of the project.

In addition, the project will add a new restaurant and retail space to an existing commercial parcel, which is consistent with the Commercial zoning as identified by the City’s General Plan. The proposed project would be subject to approval by the City of Moreno Valley Fire Department which would ensure that sufficient personnel are available to serve the proposed project. The addition of a fuel station, restaurant and retail building on the parcel is not anticipated to generate emergency services beyond what can be handled by the existing City’s services.

Therefore, there is a less than significant impact, and no mitigation is required.

ii) Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Response: The City of Moreno Valley contracts with the Riverside County Sheriff’s Department to staff the Moreno Valley Police Department (MVPD). The closest police station to the project is the main station located at 22850 Calle San Juan De Los Lagos, approximately 6.5 miles to the west of the project.

The addition of the fueling station, restaurant and retail building is not anticipated to increase unique or more extensive crime problems that cannot be handled with the existing level of police.

Therefore, there is a less than significant impact, and no mitigation is required.

iii) Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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Response: No aspect of the proposed project will generate additional residents or children that need service by the school district.

Therefore, there is no impact.

iv) Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Response: No aspect of the proposed project will generate additional residents that will utilize parks or recreational services.

Therefore, there is no impact.

v) Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Response: No aspect of the proposed project will generate the need for other public services.

Therefore, there is no impact.

Sources:

1. Moreno Valley General Plan, adopted July 11, 2006
 - Chapter 2 – Community Development Element – Section 2.5 – Schools
 - Figure 2-3 – School District Boundaries
 - Chapter 2 – Community Development Element – Section 2.6 – Library Services
 - Chapter 2 – Community Development Element – Section 2.7 – Special Districts
 - Chapter 2 – Community Development Element – Section 2.5 – Other City Facilities
 - Chapter 4 – Parks, Recreation and Open Space Element – Section 4.3 – Parks and Recreation
 - Figure 4-2 – Future Parklands Acquisition Areas
 - Figure 4-3 – Master Plan of Trails
 - Chapter 6 – Safety Element – Section 6.1 – Police Protection and Crime Preventions
 - Chapter 6 – Safety Element – Section 6.2 – Fire and Emergency Services
 - Figure 6-1 – Fire Stations
2. Final Environmental Impact Report City of Moreno Valley General Plan, certified July 11, 2006
 - Section 5.13 – Public Services
 - Figure 5.13-1 – Location of Public Facilities
3. Title 9 – Planning and Zoning of the Moreno Valley Municipal Code

XVI. RECREATION – Would the project:

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Response: The project does not propose any residential use or other land use that may generate a population that would increase the use of existing neighborhood and regional parks or other recreational facilities.

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ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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Accordingly, implementation of the proposed project would not result in the increased use or substantial physical deterioration of an existing neighborhood or regional park.

Therefore, there is no impact.

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Response: The project would not induce population growth. It also does not propose to construct any new on- or off-site recreation facilities. Additionally, the project would not expand any existing off-site recreational facilities. Thus, no impacts related to the construction or expansion of recreational facilities would not occur with implementation of the proposed project.

Therefore, there is no impact.

Sources:

1. Moreno Valley General Plan, adopted July 11, 2006
 - Chapter 4 – Parks, Recreation and Open Space Element – Section 4.3 – Parks and Recreation
 - Figure 4-1 Open Space
 - Figure 4-2 – Future Parklands Acquisition Areas
 - Figure 4-3 – Master Plan of Trails
2. Final Environmental Impact Report City of Moreno Valley General Plan, certified July 11, 2006
 - Section 5.13 – Public Services
 - Figure 5.13-1 – Location of Public Facilities
3. Title 9 – Planning and Zoning of the Moreno Valley Municipal Code

XVII. TRANSPORTATION – Would the project:

a) Conflict with program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Response: A Traffic Impact Analysis (TIA) for the proposed project was prepared by TJW Engineering in October 2020 (Appendix H-1), and a focused intersection review of Redlands Blvd and Alessandro Blvd was prepared in February 2021 (Appendix H-2).

The Farm Market Plaza is located on the southeast corner of the intersection of Redlands Blvd and Alessandro Blvd, an existing all-way stop controlled intersection. Both Redlands Blvd and Alessandro Blvd are arterials in the City’s Circulation Element with a variety of cross-sections depending on the location within the City and proximity to SR-60. The project intersection is located in a relatively underdeveloped area of Moreno Valley with a neighborhood gas station / convenience store, post office and single-family homes surrounding the intersection. All approaches are single lane entries, except for the south approach, which has two approach lanes with one lane ending at the intersection. The current lane configuration for the Redlands Blvd and Alessandro Blvd intersection is as follows:

Redlands Blvd (N/S):

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ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<ul style="list-style-type: none"> • Northbound: One shared through-left turn lane. One right turn lane. • Southbound: One shared left turn/through/right turn lane. <p>Alessandro Blvd (E/W):</p> <ul style="list-style-type: none"> • Eastbound: One shared through-left turn lane. One right turn pocket. • Westbound: One shared left turn/through/right turn lane. <p>The intersection of Redlands Blvd and Alessandro Blvd currently operates as an all-way stop with a single stop sign on each corner. The intersection is unimproved with sidewalk, ADA ramps, and curb and gutter missing. AC Berm is present on most of the corners and sidewalk is present on the northeast corner only where a gas station is located. Utility poles and overhead wires are present on all four corners of the intersection. Streetlights are located on utility poles at the two north approach corners. Speed limits are posted with 50 MPH signs on located on Redlands Blvd and 40 MPH signs located on Alessandro Blvd at the intersection. On-street parking is prohibited.</p> <p>Site access is planned via one right-in/right-out driveway on Redlands Blvd and one right-in/right-out driveway on Alessandro Blvd.</p> <p>The site is currently zoned as Village Commercial (VC) and classified as Commercial Land Use in the City of Moreno Valley General Plan Land Use Map. The project site is currently partially occupied by an existing market which will remain and is incorporated into the project site plan. The proposed project land use is permitted in the zone and does not require a zone change or General Plan amendment.</p> <p><i>City of Moreno Valley General Plan</i></p> <p>The City of Moreno Valley’s General Plan, specifically Table 5-1, identifies traffic flow standards based on the level of service (LOS), which is commonly used to describe the quality of flow on roadways and at intersections. The range of LOS, which is consistent with the Transportation Research Board of the National Academy of Science, Highway Capacity Manual, 2000 uses a range of LOS from LOS A (free flow with little congestion) to LOS F (severely congested conditions).</p> <p>According to the City’s General Plan, the City of Moreno Valley roadway network LOS standards are “C” or “D” with LOS “D” occurring typically during peak hours at certain intersections. Most of the City of Moreno Valley’s road networks meet the City’s standards, except Perris Blvd, Cactus Avenue and Frederick Street/Pigeon Pass Road in the vicinity of State Route 60 in which additional studies are required.</p> <p><i>Transportation Uniform Mitigation Fee Program (TUMF)</i></p> <p>The TUMF program is administered by the Western Riverside Council of Governments (WRCOG) based upon a regional Nexus Study completed in early 2002 and updated in 2005, 2009, 2015 and 2017 to address major changes in right of way acquisition and improvement cost factors. The TUMF program identifies network backbone and local roadways that are needed to accommodate growth through 2035. The regional program was put into place to ensure that developments pay their fair share and that funding is in place for the construction of facilities needed to maintain an acceptable level of service for the transportation system. The TUMF is a regional mitigation fee program and is imposed and implemented in every jurisdiction in Western Riverside County.</p> <p><i>City of Moreno Valley Development Impact Fee (DIF) Program</i></p> <p>The proposed project is located within the City of Moreno Valley and will therefore be subject to the City’s Development Impact Fees (DIF) and a fair share contribution to project impacts.</p>				

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ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<p><i>Bike and Pedestrian Facilities</i></p> <p>The following Class II on-street bicycle lanes are planned for the following roadways within the project area:</p> <ul style="list-style-type: none"> • Redlands Blvd north of Cactus Avenue • Cactus Avenue west of Redlands Blvd • Alessandro Blvd west of Theodore Street <p>Class III on-street bicycle routes exist on Redlands Blvd/John F. Kennedy Drive south of Cactus Ave. Class III on-street bicycle lanes are planned for Cottonwood Avenue west of Redlands Blvd.</p> <p>Pedestrian facilities exist along the east side of Redlands Blvd along project frontage and extend south to Campbell Avenue. Pedestrian facilities generally do not extend beyond those previously mentioned. There are no marked crosswalks at the intersection of Redlands Blvd and Alessandro Blvd.</p> <p>No project component would obstruct existing bike and pedestrian facilities or preclude the installation or creation of planned bike and pedestrian facilities.</p> <p><u>Traffic Impact Analysis Results:</u></p> <p>The Traffic Impact Analysis in Appendix H-1 analyzed the impacts on roadways and intersections in the project area as follows:</p> <p><i>Roadways:</i></p> <ul style="list-style-type: none"> • Redlands Blvd • Alessandro Blvd • Cottonwood Ave • Cactus Ave • Wilmont Street • Merwin Street <p><i>Intersections:</i></p> <ul style="list-style-type: none"> • #1 - Wilmot St/Alessandro Blvd • #2 - Redlands Blvd/Cottonwood Ave • #3 - Redlands Blvd/Alessandro Blvd • #4 - Redlands Blvd/Cactus Ave • #5 - Merwin St/Alessandro Blvd • #6 – Redlands Blvd/Driveway 1 • #7 – Driveway 2/Alessandro Blvd <p>The TIA in Appendix H-1 identified that all of the roadways and intersections within the Project area currently operate within the City’s LOS standards, except for the intersection of Redlands Blvd/Alessandro Blvd, which currently operates at a LOS “D” during both AM and PM peak hours without the project (refer to Table 5 and Table 6 of the TIA in Appendix H-1). However, the City of Moreno Valley’s General Plan states that the acceptable LOS for the City’s roadway network is “C” or “D,” “with LOS ‘D’ occurring typically during peak hours at certain intersections.”</p>				

ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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The TIA in Appendix H-1 studied various scenarios that generally concluded that in various AM and PM peak hour scenarios with the project, the Redlands Blvd/Alessandro Blvd intersection LOS reduces from its existing LOS of “D” to “E” and “F” (refer to tables 4 through 22 in the TIA in Appendix H-1 for full details). Summaries of two key scenarios are as follows:

- **Existing Condition Plus Project Traffic (EP).** With the project, the LOS for the Redlands Blvd/Alessandro Blvd intersection would be reduced from LOS “D” to LOS “E,” but only in the AM peak hour.
- **Existing Condition Plus Ambient Plus Cumulative Plus Project (EACP).** EACP volumes include the existing traffic (E), plus background traffic (A), plus the addition of the traffic projected to be generated by cumulative future developments in the vicinity of the proposed project (C), plus the proposed project (P). Cumulative developments assumed in this scenario are identified in Table 9 of the TIA (Appendix H-1) and are projects which are in various stages of planning, entitlement and construction. Since the proposed project is expected to be built and generating trips in 2024, *EACP* volumes include an ambient growth rate of 2% per year for five years, applied to existing volumes.

The EACP results also indicate that only the Redlands Blvd/Alessandro Blvd intersection would reach a level of service of “F” in both AM and PM peak hours.

The TIA recommended that a traffic signal be installed at the Redlands Blvd/Alessandro Blvd intersection to relieve the potential service degradation.

As such, a focused intersection study Redlands Blvd/Alessandro Blvd was conducted to further analyze the potential cumulative impacts over time (refer to Appendix H-2). The focused intersection study identified that significant changes in traffic demand and circulation will occur within the project area due to the implementation of the *World Logistics Center* project, which will close Alessandro Blvd east of the project, and therefore significantly reduce traffic in the project area. The study further concluded that no signal would be needed in this scenario.

The project is also required to pay fees in accordance with TUMF and the City of Moreno Valley.

Therefore, based on the TIA, the focused intersection study, and the required fee payment, the project is consistent with City program plans, ordinances and policies addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities.

Therefore, there is a less than significant impact, and no mitigation is required.

b) Conflict or be inconsistent with [CEQA Guidelines section 15064.3, subdivision \(b\)](#)?

Response: Per the CEQA Guidelines section 15064.3, subdivision (b)(1), projects that reduce vehicle miles traveled (VMT), such as pedestrian, bicycle and transit projects, should have a less than significant impact. Per the CEQA Guidelines section 15064.3, subdivision (b)(2), transportation projects which reduce vehicle miles traveled should be presumed to cause a less than significant impact.

Moreno Valley’s June 2020 “Traffic Impact Preparation Guide” identifies thresholds of significance for use as part of the environmental review process under CEQA:

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ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<p>1. A project would have a significant VMT impact if, in the Existing Plus Project scenario, its net VMT per capita (for residential projects) or per employee (for office and industrial projects) exceeds the per capita VMT for Moreno Valley. For all other uses, a net increase in VMT would be considered a significant impact.</p> <p>2. If a project is consistent with the regional RTP/SCS, then the cumulative impacts shall be considered less than significant subject to consideration of other substantial evidence. If it is not consistent with the RTP/SCS, then it would have a significant VMT impact if: a. For residential projects its net VMT per capita exceeds the average VMT per capita for Moreno Valley in the RTP/SCS horizon-year. b. For office and industrial projects its net VMT per employee exceeds the average VMT per employee for Moreno Valley in the RTP/SCS horizon year c. For all other land development project types, a net increase in VMT in the RTP/SCS horizon-year would be considered a significant impact.</p> <p>According to the VMT analysis provided in (Appendix H-3), the project is an existing market and will construct fuel pumps and add some small retail to serve the local area. The proposed project is not identified to be a transportation project, and no significant land use changes are proposed. Although the project proposes an increase in development density, the results of the VMT Analysis (Appendix H-3) determined that no unmitigable significant impacts regarding traffic would occur upon project implementation. Based on the trip generation provided by the TIA in Appendix H-1, the project traffic would not rise to a level that could conflict with CEQA Guidelines.</p> <p>Therefore, there is a less than significant impact, and no mitigation is required.</p>				
<p>c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>Response: According to the site plan submitted to the City of Moreno Valley (Figure 3), the project does not propose sharp curves or intersection features known to increase hazards. No incompatible uses are proposed as the project is of a commercial nature on a site already under commercial use.</p> <p>Therefore, there is no impact.</p>				
<p>d) Result in inadequate emergency access?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>Response: The proposed project would not result in inadequate emergency access. The project design includes improved driveway access from both Redlands Blvd and Alessandro Blvd. The proposed construction and operational activities do not include any new design or development that would prevent access to the proposed project area in the event of an emergency, either during construction or operations.</p> <p>Therefore, there is no impact.</p>				
<p>Sources:</p> <ol style="list-style-type: none"> 1. Moreno Valley General Plan, adopted July 11, 2006 <ul style="list-style-type: none"> • Chapter 5 Circulation Element <ul style="list-style-type: none"> - Figure 9-1 – Circulation Plan - Figure 9-2 – LOS Standards - Figure 9-3 – Roadway Cross-Sections - Figure 9-4 – Bikeway Plan 				

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2. Final Environmental Impact Report City of Moreno Valley General Plan, certified July 11, 2006
 - Section 5.2 – Traffic/Circulation
 - Figure 5.2-1 – Circulation Plan
 - Figure 5.2-2 – General Plan Roadway Cross-Sections
 - Figure 5.2-3 – Year 2000 Number of Through Lanes
 - Figure 5.2-4 – Year 2000 Daily Volume/Capacity (V/C) Ratios
 - Figure 5.2-5 – Year 2000 Average Daily Traffic Volumes
 - Figure 5.2-6 – Proposed Circulation Plan
 - Figure 5.2-7 – LOS Standards
 - Appendix B – Traffic Analysis, City of Moreno Valley General Plan Traffic Study, Urban Crossroads, June 2004.
3. Title 9 – Planning and Zoning of the Moreno Valley Municipal Code
4. Moreno Valley Municipal Code Chapter 3.18 Special Gas Tax Street Improvement Fund
5. Moreno Valley Master Bike Plan, adopted January 2015
6. Riverside County Transportation Commission, Congestion Management Program, December 14, 2011
7. Redlands Alessandro Commercial Plaza, Traffic Impact Analysis, City of Moreno Valley, prepared by TJW Engineering, October 15, 2020 (Appendix H-1).
8. Redlands Boulevard and Alessandro Boulevard Intersection Review in the City of Moreno Valley, prepared by TJW Engineering, February 12, 2021 (Appendix H-2).
9. Vehicle Miles Traveled (VMT) Analysis, City of Moreno Valley, prepared by TJW Engineering, September 1, 2020 (Appendix H-3).

XVIII. TRIBAL CULTURAL RESOURCES – Would the project:

- a) Cause a substantial adverse change in the significance of a tribal cultural resource, defined in [Public Resources Code Section 21074](#) as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k) , or	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Response: According to PRC Chapter 2.5, Section 21074, tribal cultural resources are sites, features, places, cultural landscapes, sacred places, and items with cultural value to a California Native American tribe that are either included or determined to be eligible for inclusion in the California Register of Historical Resources or included in a local register of historical resources as defined in Section 5020.1.

As part of the project’s cultural resources study, the Native American Heritage Commission identified that a search of its Sacred Lands File did not indicate the presence of Native American cultural resources within the project area or surrounding vicinity.

The City of Moreno Valley also conducted tribal consultation in accordance with AB 52. No resources were identified through consultation, and no tribes requested consultation during the response period.

There are no resources that have been identified as eligible for listing to the California Register of Historic Places or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k) within or near the Project site.

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Therefore, there is a less than significant impact, and no mitigation is required.

ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code section 5024.1 . In applying the criteria set forth in subdivision (c) of Public Resources Code section 5024.1 , the lead agency shall consider the significance of the resource to a California Native American tribe.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Response: As identified in response XVIII (a), the project site is previously disturbed land currently under commercial land use. There are no resources that have been identified as a significance resource to a California Native American tribe within or near the Project site.

Therefore, there is a less than significant impact, and no mitigation is required.

Sources:

1. Moreno Valley General Plan, adopted July 11, 2006
 - Chapter 7 – Conservation Element – Section 7.2 – Cultural and Historical Resources
2. Final Environmental Impact Report City of Moreno Valley General Plan, certified July 11, 2006
 - Section 5.10 – Cultural Resources
 - Figure 5.10-1 – Locations of Listed Historic Resource Inventory Structures
 - Figure 5.10-2 – Location of Prehistoric Sites
 - Figure 5.10-3 – Paleontological Resource Sensitive Areas
 - Appendix F – Cultural Resources Analysis, Study of Historical and Archaeological Resources for the Revised General Plan, City of Moreno Valley, Archaeological Associates, August 2003.
3. Title 9 – Planning and Zoning of the Moreno Valley Municipal Code
4. Moreno Valley Municipal Code Title 7 – Cultural Preservation
5. Cultural Resources Inventory for the City of Moreno Valley, Riverside County, California, prepared by Daniel F. McCarthy, Archaeological Research Unit, University of California, Riverside, October 1987 (*This document cannot be provided to the public due to the inclusion of confidential information pursuant to Government Code Section 6254.10.*)

XIX. UTILITIES AND SERVICE SYSTEMS – Would the project:

a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Response: The proposed project consists of the construction of a one-story multi-tenant commercial structure, a gas station, and associated paving. Grading would occur on the site but would be subject to a Storm Water Pollution Prevention Plan that complies with the California Construction General Permit under the National

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Pollutant Discharge Elimination System, which would ensure that stormwater drainage impacts would be less than significant.

The project design does not require the relocation or construction expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities.

Therefore, there is a less than significant impact, and no mitigation is required.

b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Response: The City of Moreno Valley is served by two water purveyors: Eastern Municipal Water District, and the Box Springs Mutual Water Company. Eastern Municipal Water District is the primary water purveyor, serving approximately 85 percent of the City of Moreno Valley, including the project site.

Most of the City's water is imported via the California Aqueduct from northern and central California. This water is managed by the Metropolitan Water District of Southern California (MWDSC). It is MWDSC's policy to provide its service area with adequate supplies of water to meet expanding and increasing needs in the years ahead. MWDSC currently maintains that successful implementation of its Integrated Resources Plan (IRP) will provide sufficient water to supply all projected imported water demands for the next 20 years. When additional water is required to meet the water district's increasing needs for domestic, industrial, and municipal water, MWDSC will be prepared to deliver such supplies.

The proposed commercial uses associated with the project would occur on a parcel that has been designated by both the City's General Plan and zoning code as intended for commercial uses. MWDSC currently maintains that successful implementation of its Integrated Resources Plan (IRP) will provide sufficient water to supply all projected imported water demands for the next 20 years. As a result, water infrastructure in the area, including on adjacent parcels being used for similar purposes, is in place to serve the needs of the proposed Project.

Therefore, there is a less than significant impact, and no mitigation is required.

c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Response: Wastewater service in Moreno Valley is provided by the Eastern Municipal Water District (EMWD), which serves most of the City and surrounding areas, and the Edgemont Community Services District, which provides service to a small area in southwestern Moreno Valley.

EMWD operates over 356 miles of sewer mains (12" and above) and six sewage lift stations to provide wastewater collection services within the planning area. All wastewater is collected and conveyed to the Moreno Valley Regional Water Reclamation Facility (MVRWRF) located in the southwestern portion of the City and has a capacity to treat 16 million gallons of wastewater per day (mgd) and a capacity to expand to 41 mgd.

Wastewater demands for the project can be accommodated existing facilities. Both the project site and its surroundings are served by wastewater treatment infrastructure intended to serve the commercial uses for which

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the area is zoned. The project does not propose activities that would necessitate an increase in the capacity of existing wastewater systems.

Therefore, there is a less than significant impact, and no mitigation is required.

d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Response: Solid waste generated within the planning area is primarily deposited in the Riverside County Waste Management Department’s (RCWMD) Badlands Landfill, located approximately 1.5 miles north of SR-60 near Ironwood Avenue and Theodore Street. However, the City’s trash hauler can also use other County landfills in the area such as the Lamb Canyon Landfill and El Sobrante landfill. All Riverside County landfills are Class III disposal sites permitted to receive non-hazardous municipal solid waste. Waste Management of Inland Empire currently provides waste pickup in Moreno Valley.

As noted above, the intention of the goals, policies, and land use map of the City’s General Plan is that the project site and surround parcels be used for commercial purposes. As such, the City’s solid waste handling infrastructure has sufficient capacity to serve solid waste generated by the project, although the commercial nature of the project would not generate significant amounts of solid waste as no residential or industrial activities including processing would occur on the site.

Therefore, there is a less than significant impact, and no mitigation is required.

e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Response: Federal, State, and local statutes and regulations regarding solid waste generation, transport, and disposal are intended to decrease solid waste generation through mandatory reductions in solid waste quantities (e.g., through recycling and composting of green waste) and the safe and efficient transport of solid waste. The Project would be required to coordinate with CR&R Waste Services to develop a collection program for recyclables, such as paper, plastics, glass, and aluminum, in accordance with local and State programs, including AB S41, Mandatory Commercial Recycling, and the California Solid Waste Reuse and Recycling Act of 1991.

Additionally, the project would be required to comply with applicable practices enacted by the City under the California Integrated Waste Management Act of 1989 (AB 939) and any other applicable local, State, and federal solid waste management regulations. AB 939 required that local jurisdictions divert at least 50 percent of all solid waste generated by January 1, 2000. The diversion goal has been increased to 75 percent by 2020 by SB 341. Further, the Solid Waste Disposal Measurement Act of 2008 (SB 1016) was established to make the process of goal measurement (as established by AB 939) simpler, more timely, and more accurate. SB 1016 builds on AB 939 compliance requirements by implementing a simplified measure of jurisdictions’ performance. SB 1016 accomplishes this by changing to a disposal-based indicator—the per capita disposal rate—which uses only two factors: (1) a jurisdiction’s population (or in some cases employment); and (2) its disposal, as reported by disposal facilities. In 2017 (the last year data was approved), the City implemented 37 programs to reduce solid waste generation and achieve the increased solid waste diversion required. These programs involve composting, facility recovery, household hazardous waste, policy incentives, public education, recycling, source reduction, and special waste materials (CalRecycle, 2019a). The City had an average disposal rate of 5.1 pounds per resident per day and 20.6 pounds per employee per day in 2017, which exceeds the established disposal rate target of

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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6.3 pounds per resident per day and meets the disposal rate target of 20.6 pounds per employee per day (CalRecycle, 2019b).

The CalGreen Code requires all new developments to divert 65 percent of nonhazardous construction and demolition (C&D) debris for all projects. In compliance with these regulations, the project contractor would submit a waste management plan to the City as part of the building or grading permit. The plan would include the estimated volumes or weights of C&D materials that would be generated, diverted, reused, given away or sold, or landfilled, including vendors and facilities that would receive the C&D materials. The project would comply with the CalGreen Code requirements for C&D diversion. In addition, under long-term operating conditions, the project would be required to participate in the City’s recycling programs and comply with hazardous waste disposal regulations.

The project would be required to comply with all applicable solid waste statutes and regulations.

Therefore, there is a less than significant impact, and no mitigation is required.

Sources:

1. Moreno Valley General Plan, adopted July 11, 2006
 - Chapter 2 – Conservation Element – Section 2.4 – Utilities
 - Chapter 6 – Safety Element – Section 6.7 – Water Quality
 - Chapter 7 – Conservation Element – Section 7.3 – Solid Waste
 - Chapter 7 -- Conservation Element – Section 7.5—Water Resources
 - Figure 7-1 – Water Purveyor Service Area Map
2. Final Environmental Impact Report City of Moreno Valley General Plan, certified July 11, 2006
 - Section 5.7 – Hydrology and Water Quality
 - Figure 5.7-1 – Storm Water Flows and Major Drainage Facilities
 - Figure 5.7-2 – Groundwater Basins
 - Section 5.13 – Public Services
 - Figure 5.13-1 – Locations of Public Facilities
3. Title 9 – Planning and Zoning of the Moreno Valley Municipal Code
4. Moreno Valley Municipal Code Chapter 8.10 Stormwater/Urban Runoff Management and Discharge Controls
5. Moreno Valley Municipal Code Section 8.21.170 National Pollutant Discharge Elimination System (NPDES).
6. Moreno Valley Municipal Code Chapter 8.80 – Recycling and Diversion of Construction and Demolition Waste

XX. WILDFIRE – If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, **would the project:**

a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
--	--------------------------	--------------------------	-------------------------------------	--------------------------

Response: The proposed project is not located within a very high fire hazard severity zone. The project is located on private property on the southwest corner of two major thoroughfares: Redlands Blvd and Alessandro Blvd. All project activities will occur off the major thoroughfares.

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ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<p>A wildland fire is an uncontrolled fire in combustible vegetation that is typically found in a rural or wilderness area. Wildland fires pose a great danger to urban areas where lives and property can be severely affected. Within the City of Moreno Valley, wildfire poses a threat to the northern and eastern portions of the city, as those areas are within the high fire hazard area. Also, the southeast area contains the largest potential for state land threat, Lake Perris, which is a California State Park that falls under the direct protection of the City of Moreno Valley for structure and wildland protection. This area also includes a wildlife refuge area which has a “no fire retardant dropping area.” Other areas of concern include Box Springs (northwest area), San Timoteo Canyon (north end) and Reche Canyon (northeast area).</p> <p>The City of Moreno Valley has adopted a Local Hazard Mitigation Plan that addresses various hazards in the City including wildfire. No aspect of the project will impede the ability for Redlands Blvd and Alessandro Blvd to be used as an emergency evacuation route or prevent the site from being used to service emergency services, should those be needed for emergency evacuation purposes.</p> <p>Therefore, there is a less than significant impact, and no mitigation is required.</p>				
<p>b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>Response: The proposed Project is not located within a very high fire hazard severity zone. The City has identified that the closest very high fire zone to the project is approximately 1 mile to the south, within the hilly area. The project is an existing business that will add a commercial area and a fuel center. The project area is flat, and is surrounded primarily by residential use. The project will not exacerbate wildfire risks to the hillside area located approximately 1 mile to the south, and therefore will not expose occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire.</p> <p>Therefore, there is a less than significant impact, and no mitigation is required.</p>				
<p>c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>Response: The proposed Project is not located within a very high fire hazard severity zone. The proposed construction and operational activities would not require installation of maintenance of associated structures that would exacerbate wildfire risk.</p> <p>Therefore, there is no impact.</p>				
<p>d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
--	--------------------------------	--	------------------------------	-----------

Response: The proposed project is located in an urban area that is flat with no topographic relief. The project is not located within a very high fire hazard severity zone. The proposed construction and operational activities would not expose people or structures to risks involving post-fire slope instability or drainage changes.

Therefore, there is no impact.

Sources:

1. Moreno Valley General Plan, adopted July 11, 2006
 - Chapter 6 – Safety Element – Section 6.2- Fire and Emergency Services – 6.2.8—Wildland Urban Interface
2. Final Environmental Impact Report City of Moreno Valley General Plan, certified July 11, 2006
 - Section 5.5 – Hazards and Hazardous Materials
 - Figure 5.5-2 – Floodplains and High Fire Hazard Areas
3. Title 9 – Planning and Zoning of the Moreno Valley Municipal Code
4. Local Hazard Mitigation Plan, City of Moreno Valley Fire Department, adopted October 4, 2011, amended 2017, http://www.moval.org/city_hall/departments/fire/pdfs/haz-mit-plan.pdf
 - Chapter 5 – Wildland and Urban Fires
 - Figure 5-2 – Moreno Valley High Fire Area Map 2016
 - Chapter 8 – Landslide
 - Figure 8-1 – Moreno Valley Slope Analysis 2016
5. Emergency Operations Plan, City of Moreno Valley, March 2009, http://www.moval.org/city_hall/departments/fire/pdfs/mv-eop-0309.pdf
 - Threat Assessment 3 – Wildfire

XXI. MANDATORY FINDINGS OF SIGNIFICANCE

<p>a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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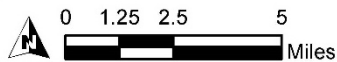
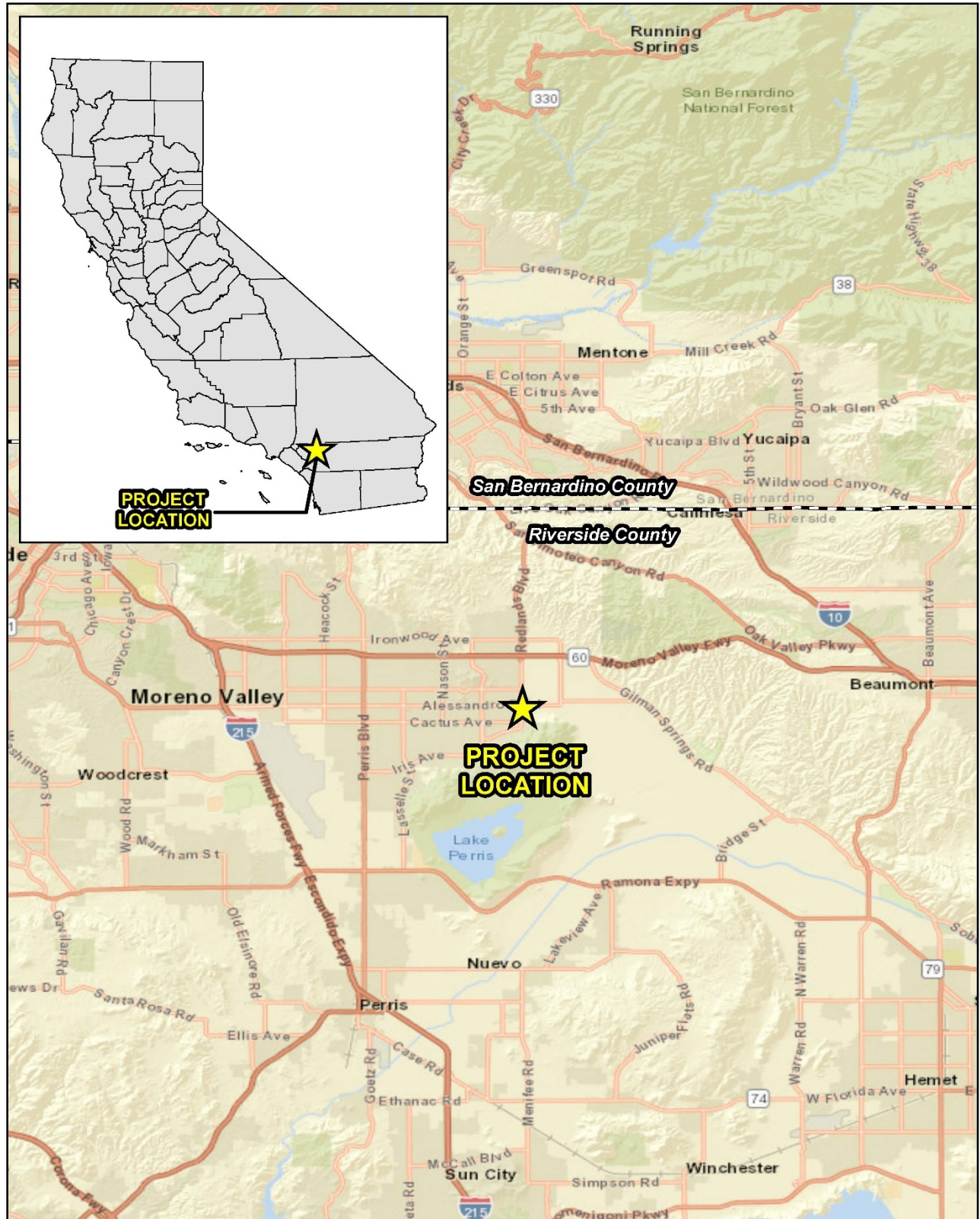
Response: Based on the analysis provided in this Initial Study, the proposed project would not have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory. Mitigation measures and standard permit conditions are identified for potential impacts of the project on biological resources, cultural resources, and geology / soils to reduce these effects to a less-than-significant level.

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ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<p>b) Does the project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current project, and the effects of probable future projects.)?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>Response: The associated projects near the project site will not have a cumulative impact because the projects will be developed in incremental stages over time. Therefore, there will be a less than significant impact.</p>				
<p>c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>Response: As evidenced in this Initial Study, the proposed project would not result in substantial adverse effects on human beings, directly or indirectly, since all potentially significant impacts would be less than significant based on compliance with regulatory requirements, and implementation of project design features such as BMPs, and mitigation measures identified in this Initial Study.</p>				

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FIGURES



Source: World Street Map, Riverside County

FARM MARKET PLAZA INITIAL STUDY
 14058 REDLANDS BLVD, MORENO VALLEY
Figure 1 - Regional Vicinity

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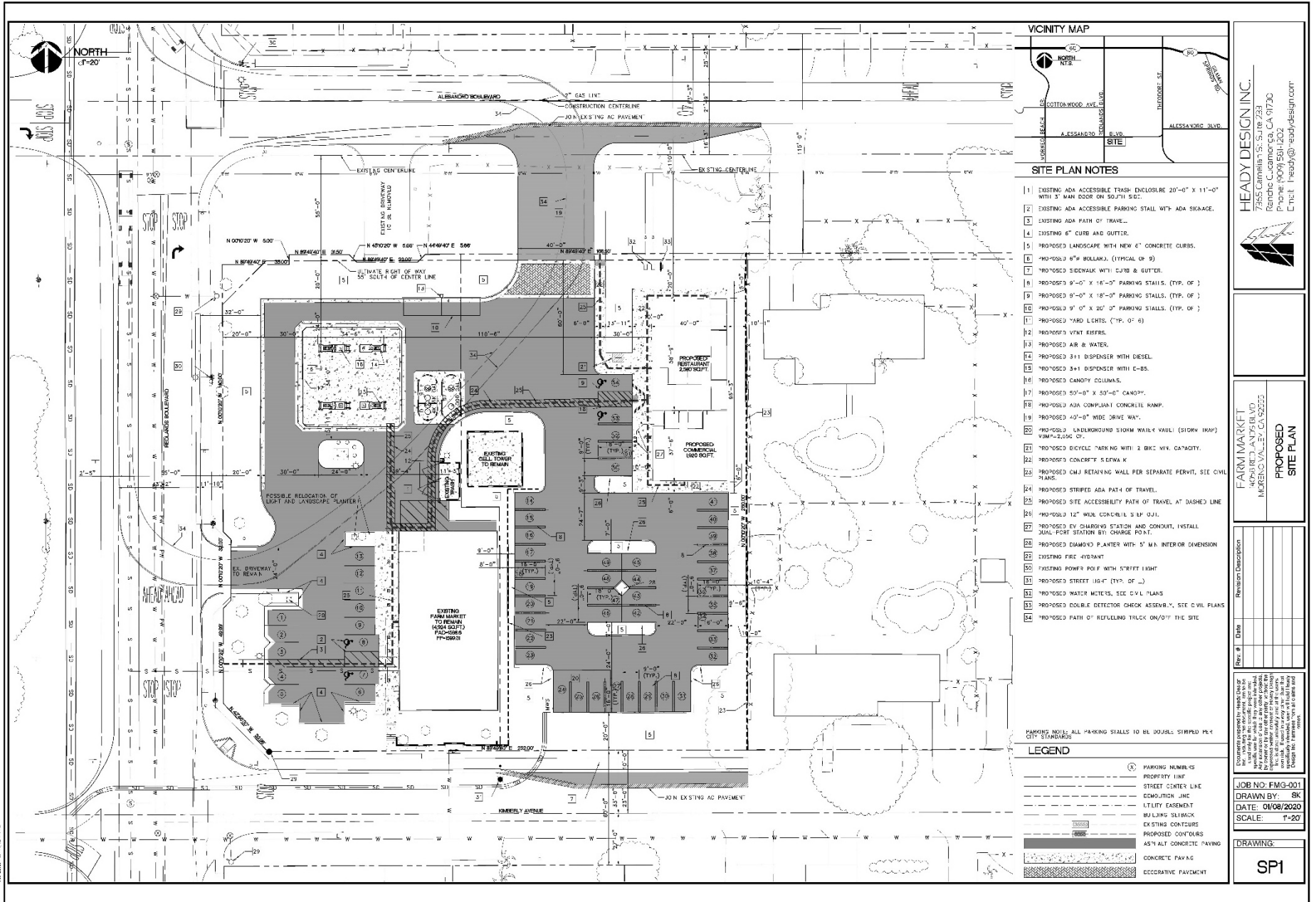


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Source: ESRI Aerial Imagery, Riverside County

F ARM MARKET PLAZA INITIAL STUDY
 14058 REDLANDS BLVD, MORENO VALLEY
Figure 2 - Project Site



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 Email: heady@headydesign.com

FARM MARKET PLAZA
 MORENO VALLEY, CA 92522

PROPOSED SITE PLAN

Rev. #	Date	Revision Description

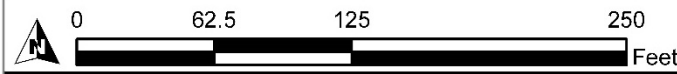
Drawings prepared by Heady Design, Inc. for the project described herein are the property of Heady Design, Inc. and are not to be used for any other project without the written consent of Heady Design, Inc. Heady Design, Inc. is not responsible for any errors or omissions in these drawings. The user of these drawings shall be responsible for obtaining all necessary permits and approvals from the appropriate authorities. Heady Design, Inc. is not responsible for any damages or liabilities arising from the use of these drawings.

JOB NO: FMG-001
DRAWN BY: SK
DATE: 01/08/2020
SCALE: 1"=20'

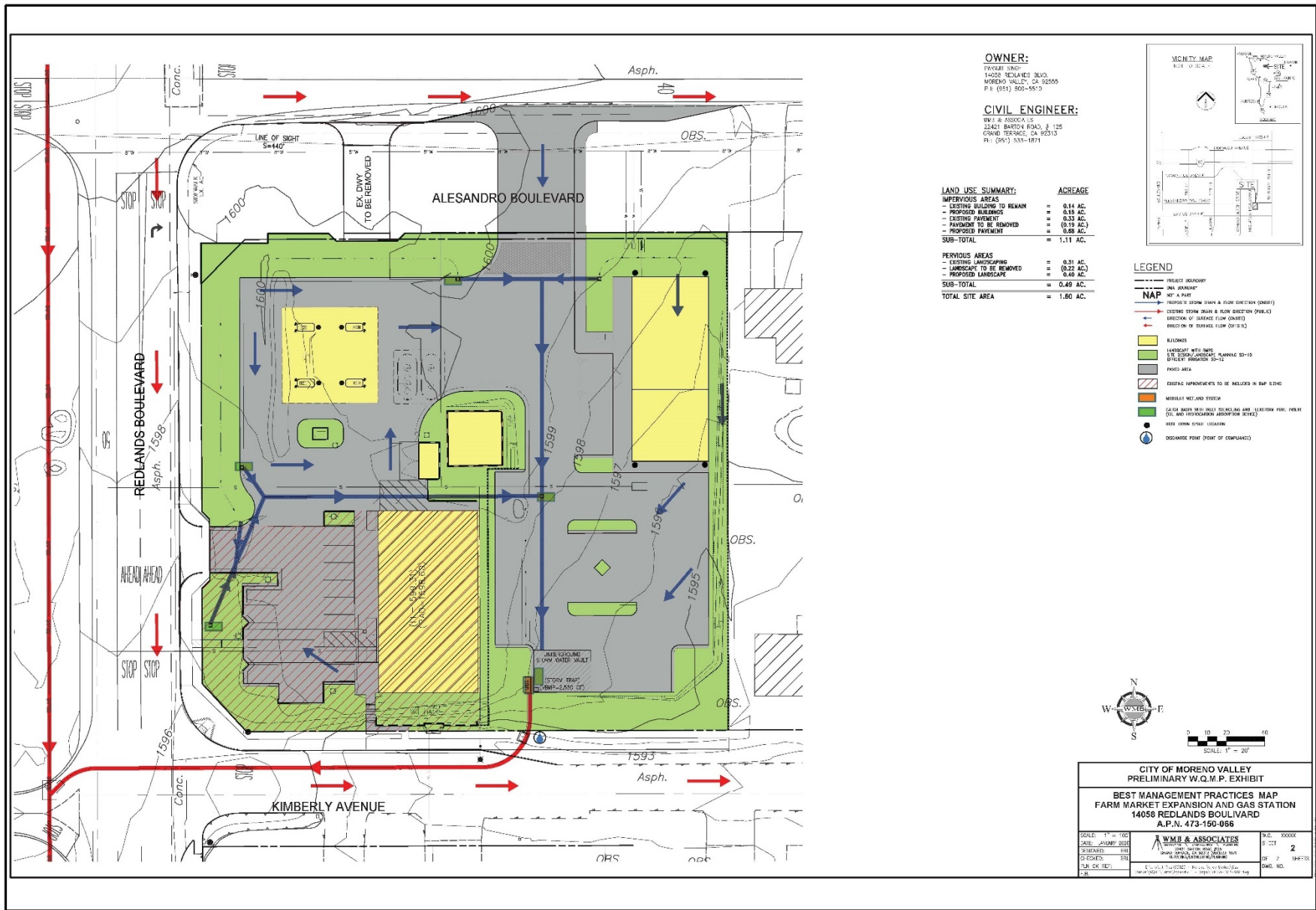
DRAWING: SP1

FARM MARKET PLAZA INITIAL STUDY
 14058 REDLANDS BLVD, MORENO VALLEY

Figure 3 - Site Plan



Source: Heady Design, Riverside County



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Source: WMB & Associates, Riverside County

FARM MARKET PLAZA INITIAL STUDY
 14058 REDLANDS BLVD, MORENO VALLEY
Figure 4 - Best Management Practices Map

Appendix A - Air Quality and Greenhouse Gas Analysis

Farm Market Improvement Development Air Quality and Greenhouse Gas Impact Study City of Moreno Valley, CA

Prepared for:

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Date: 10/9/2019



Noise Study Reports | Vibration Studies | Air Quality | Greenhouse Gas | Health Risk Assessments

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CalEEMod Daily Emission Output

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Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

GLOSSARY OF TERMS

AQMP	Air Quality Management Plan
CAAQS	California Ambient Air Quality Standards
CARB	California Air Resources Board
CEQA	California Environmental Quality Act
CFCs	Chlorofluorocarbons
CH ₄	Methane
CNG	Compressed natural gas
CO	Carbon monoxide
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
DPM	Diesel particulate matter
GHG	Greenhouse gas
HFCs	Hydrofluorocarbons
LST	Localized Significant Thresholds
MTCO ₂ e	Metric tons of carbon dioxide equivalent
MMTCO ₂ e	Million metric tons of carbon dioxide equivalent
NAAQS	National Ambient Air Quality Standards
NO _x	Nitrogen Oxides
NO ₂	Nitrogen dioxide
N ₂ O	Nitrous oxide
O ₃	Ozone
PFCs	Perfluorocarbons
PM	Particle matter
PM10	Particles that are less than 10 micrometers in diameter
PM2.5	Particles that are less than 2.5 micrometers in diameter
PMI	Point of maximum impact
PPM	Parts per million
PPB	Parts per billion
RTIP	Regional Transportation Improvement Plan
RTP	Regional Transportation Plan
SCAB	South Coast Air Basin
SCAQMD	South Coast Air Quality Management District
SF ₆	Sulfur hexafluoride
SIP	State Implementation Plan
SO _x	Sulfur Oxides
SRA	Source/Receptor Area
TAC	Toxic air contaminants
VOC	Volatile organic compounds
WRCC	Western Regional Climate Center

1.0 Introduction

1.1 Purpose of Analysis and Study Objectives

This air quality and greenhouse gas (GHG) analysis was prepared to evaluate whether the estimated criteria pollutants and GHG emissions generated from the project would cause a significant impact to the air resources in the project area. This assessment was conducted within the context of the California Environmental Quality Act (CEQA, California Public Resources Code Sections 21000, et seq.). The assessment is consistent with the methodology and emission factors endorsed by South Coast Air Quality Management District (SCAQMD), California Air Resource Board (CARB), and the United States Environmental Protection Agency (US EPA).

1.2 Project Summary

1.2.1 Site Location

The project site is located at the southeast corner of Redlands Boulevard and Alessandro Boulevard, in the City of Moreno Valley, CA as shown in Exhibit A. The site is currently zoned Village Commercial (VC) and classified as Commercial Land Use according to the City of Moreno Valley General Plan Land Use Map and the proposed use is commercial. The proposed project land use is permitted in the zone and does not require a zone change. Land uses directly surrounding the project include residential to the North, South and East, with commercial use to the west.

1.2.2 Project Description

The proposed project currently has an existing Farm Market store and cell tower and proposes to add the following:

- 2,000 square feet of commercial building;
- 2,500 square feet of restaurant;
- Gas station with 8 vehicle fueling station;

Exhibit B demonstrates the site plan for the project.

Construction activities within the Project area will consist of site preparation, on-site grading, building, paving, and architectural coating. Table 1 summarizes the land use description for the Project Site.

Table 1: Land Use Summary¹

Land Use	Unit Amount	Size Metric
Regional Shopping Center	2.00	TSF
High Turnover (Sit Down Restaurant)	2.50	TSF
Convenience Market with Gas Pumps	8	Pumps
Parking Lot	37	Spaces
Other Non-Asphalt Surfaces	0.48	Acres

¹ Total site is approximately 1.7 acres; however, existing uses to remain cover approximately 0.45 acres. Therefore, the project development activities cover approximately 1.25 acres.

1.2.3 Sensitive Receptors

Sensitive receptors are considered land uses or other types of population groups that are more sensitive to air pollution than others due to their exposure. Sensitive population groups include children, the elderly, the acutely and chronically ill, and those with cardio-respiratory diseases. For CEQA purposes, a sensitive receptor would be a location where a sensitive individual could remain for 24-hours or longer, such as residencies, hospitals, and schools (etc).

The closest existing sensitive receptors (to the site area) are residential land uses located adjacent to the east, approximately 40 feet north (across Alessandro Boulevard), approximately 40 feet south (across Kimberly Avenue), approximately 135 feet southwest (across the Redlands Boulevard and Kimberly Avenue intersection), and approximately 290 feet west (across Redlands Boulevard) of the project site.

1.3 Executive Summary of Findings and Mitigation Measures

The following is a summary of the analysis results:

Construction-Source Emissions

Project construction-source emissions would not exceed applicable regional thresholds of significance established by the SCAQMD. For localized emissions, the project will not exceed applicable Localized Significance Thresholds (LSTs) established by the SCAQMD.

Project construction-source emissions would not conflict with the Basin Air Quality Management Plan (AQMP). As discussed herein, the project will comply with all applicable SCAQMD construction-source emission reduction rules and guidelines. Project construction source emissions would not cause or substantively contribute to violation of the California Ambient Air Quality Standards (CAAQS) or National Ambient Air Quality Standards (NAAQS).

Established requirements addressing construction equipment operations, and construction material use, storage, and disposal requirements act to minimize odor impacts that may result from construction activities. Moreover, construction-source odor emissions would be temporary, short-term, and intermittent in nature and would not result in persistent impacts that would affect substantial numbers of people. Potential construction-source odor impacts are therefore considered less-than-significant.

Operational-Source Emissions

The project operational-sourced emissions would not exceed applicable regional thresholds of significance established by the SCAQMD. Project operational-source emissions would not result in or cause a significant localized air quality impact as discussed in the Operations-Related Local Air Quality Impacts section of this report. Additionally, project-related traffic will not cause or result in CO concentrations exceeding applicable state and/or federal standards (CO "hotspots"). Project operational-source emissions would therefore not adversely affect sensitive receptors within the vicinity of the project.

Project operational-source emissions would not conflict with the Basin Air Quality Management Plan (AQMP). The project's emissions meet SCAQMD regional thresholds and will not result in a significant cumulative impact. The project does not propose any such uses or activities that would result in potentially significant operational-source odor impacts. Potential operational-source odor impacts are therefore considered less-than significant.

The proposed project is estimated to have approximately 0.93MM gallons of through put per year which equates to an approximate 1.58 in a million maximum individual cancer risk (MICR) per SCAQMD's gasoline station health risk assessment (HRA) screening tables for receptors located at 46 meters from fuel source. The risk is below SCAQMD's 10 in a million threshold.

Project-related GHG emissions meet the SCAQMD draft threshold and are also considered to be less than significant. The project also complies with the goals of the CARB Scoping Plan, AB-32, SB-32 and City of Moreno Valley Energy Efficiency and Climate Action Strategy.

Mitigation Measures

A. Construction Measures

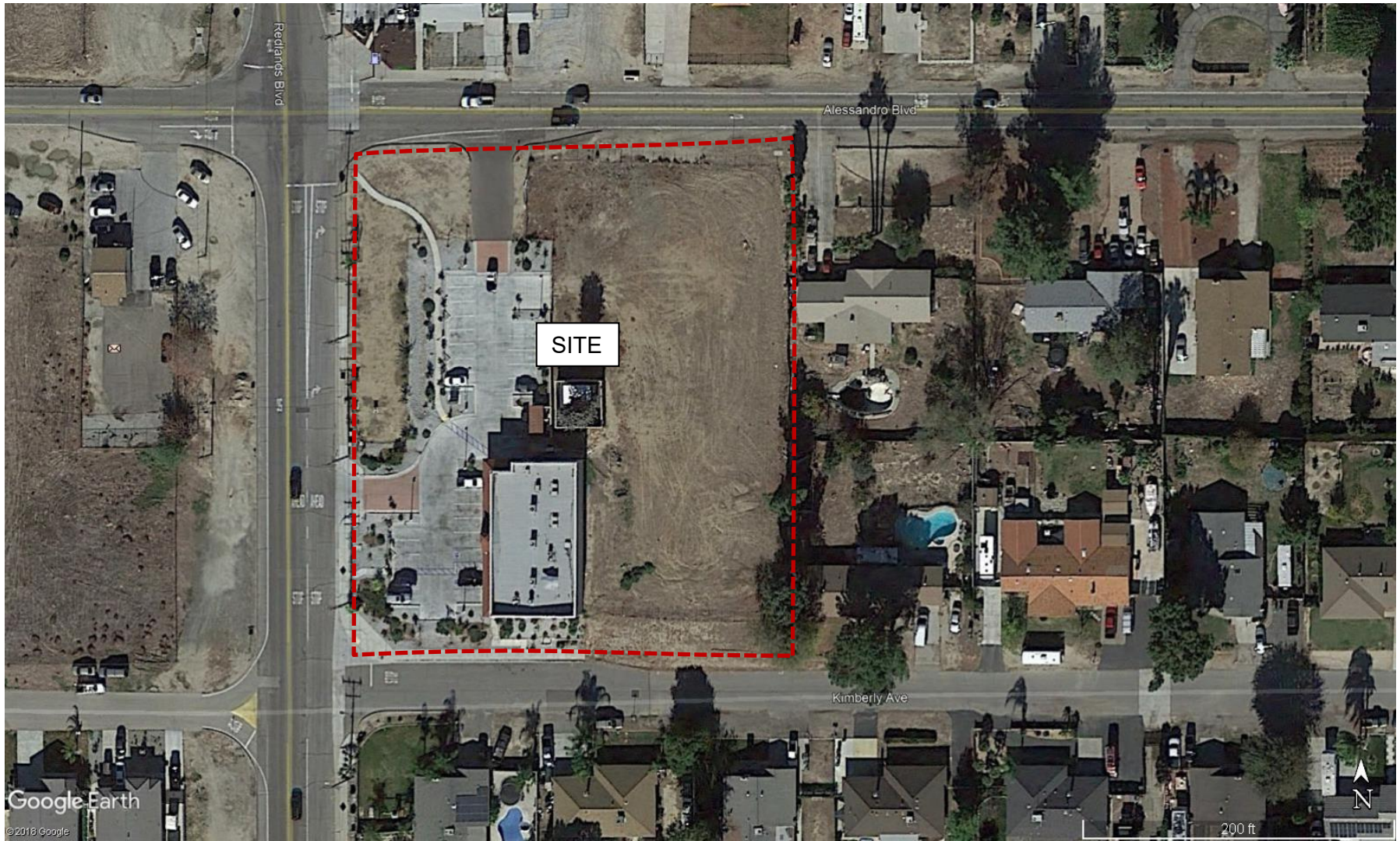
Adherence to SCAQMD Rule 403 is required.

No construction mitigation required.

B. Operational Measures to Reduce Emissions

No operational mitigation required.

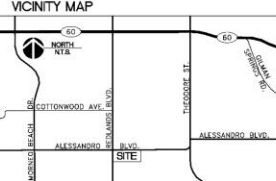
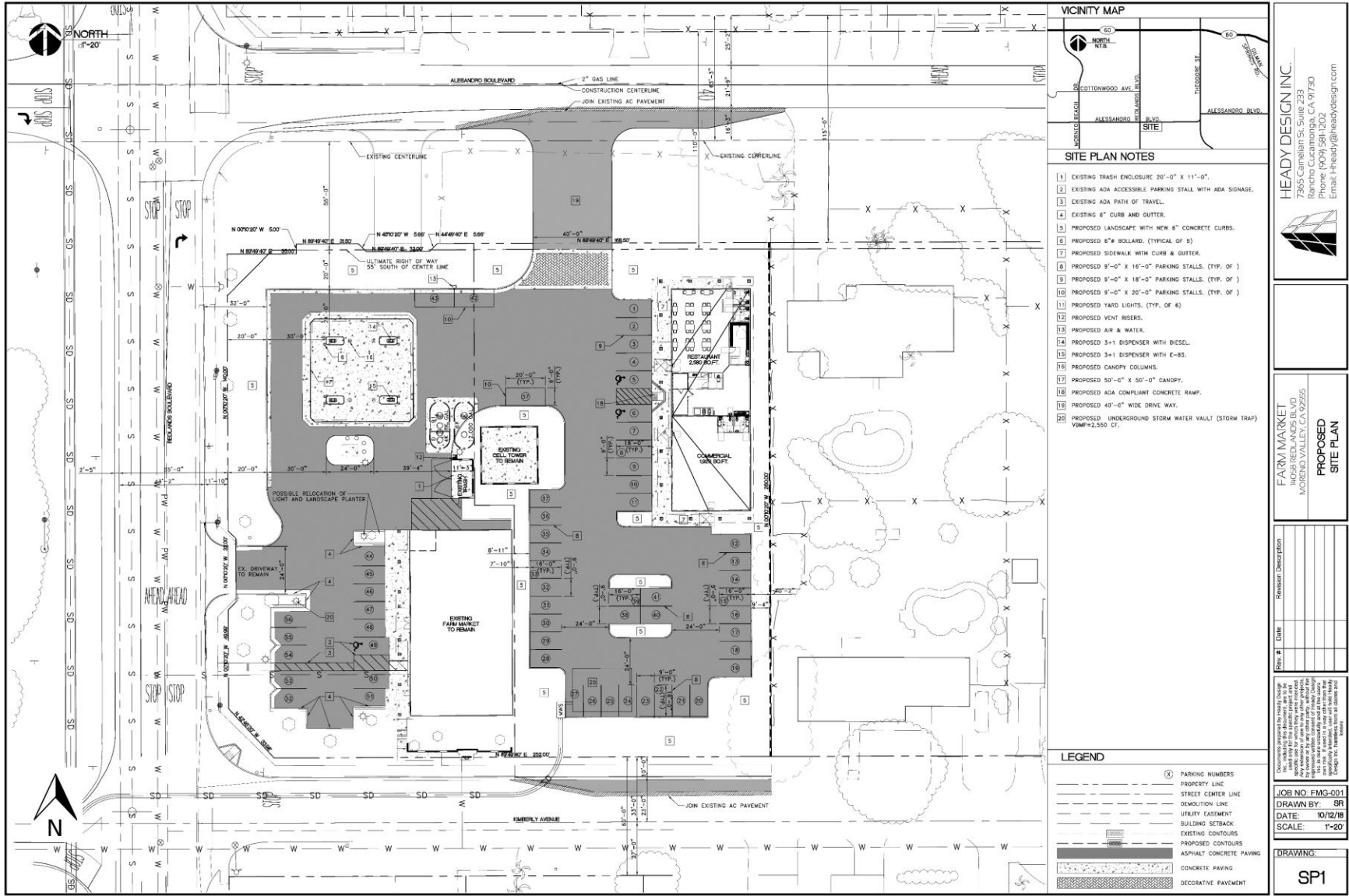
Exhibit A
Location Map



Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET

Exhibit I
 Site Plan

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET



- SITE PLAN NOTES**
- EXISTING TRASH ENCLOSURE 20'-0" X 11'-0".
 - EXISTING ADA ACCESSIBLE PARKING STALL WITH ADA SIGNAGE.
 - EXISTING ADA PATH OF TRAVEL.
 - EXISTING 6" CURB AND GUTTER.
 - PROPOSED LANDSCAPE WITH NEW 6" CONCRETE CURBS.
 - PROPOSED 6" BOLLARD, (TYPICAL OF 5)
 - PROPOSED SIDEWALK WITH CURB & GUTTER.
 - PROPOSED 9'-0" X 16'-0" PARKING STALLS, (TYP. OF 1)
 - PROPOSED 9'-0" X 18'-0" PARKING STALLS, (TYP. OF 1)
 - PROPOSED 9'-0" X 20'-0" PARKING STALLS, (TYP. OF 1)
 - PROPOSED YARD LIGHTS, (TYP. OF 6)
 - PROPOSED VENT RISERS.
 - PROPOSED AIR & WATER.
 - PROPOSED 3+1 DISPENSER WITH DIESEL.
 - PROPOSED 3+1 DISPENSER WITH E-85.
 - PROPOSED CANOPY COLUMNS.
 - PROPOSED 90'-0" X 50'-0" CANOPY.
 - PROPOSED ADA COMPLIANT CONCRETE RAMP.
 - PROPOSED 40'-0" WIDE DRIVE WAY.
 - PROPOSED UNDERGROUND STORM WATER VAULT (STORM TRAP) VOLUME 2,550 CF.

LEGEND

(X)	PARKING NUMBERS
---	PROPERTY LINE
---	STREET CENTER LINE
---	DEMOLITION LINE
---	UTILITY EASEMENT
---	BUILDING SETBACK
---	EXISTING CONTOURS
---	PROPOSED CONTOURS
---	ASPHALT CONCRETE PAVING
---	CONCRETE PAVING
---	DECORATIVE PAVEMENT

REVISIONS

Rev #	Date	Revision Description

LEGEND

- (X) PARKING NUMBERS
- PROPERTY LINE
- STREET CENTER LINE
- DEMOLITION LINE
- UTILITY EASEMENT
- BUILDING SETBACK
- EXISTING CONTOURS
- PROPOSED CONTOURS
- ASPHALT CONCRETE PAVING
- CONCRETE PAVING
- DECORATIVE PAVEMENT

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 14058 REDLANDS BLVD
 MORENO VALLEY, CA 92555

PROPOSED SITE PLAN

JOB NO. FMG-001
DRAWN BY: SR
DATE: 10/12/18
SCALE: 1"=20'

DRAWING: SP1

2.0 Regulatory Framework and Background

2.1 Air Quality Regulatory Setting

Air pollutants are regulated at the national, state, and air basin level; each agency has a different level of regulatory responsibility. The United States Environmental Protection Agency (EPA) regulates at the national level. The California Air Resources Board (ARB) regulates at the state level. The South Coast Air Quality Management District (SCAQMD) regulates at the air basin level.

2.1.1 National and State

The EPA is responsible for global, international, and interstate air pollution issues and policies. The EPA sets national vehicle and stationary source emission standards, oversees approval of all State Implementation Plans, provides research and guidance for air pollution programs, and sets National Air Quality Standards, also known as federal standards. There are six common air pollutants, called criteria pollutants, which were identified from the provisions of the Clean Air Act of 1970.

- Ozone
- Nitrogen Dioxide
- Lead
- Particulate Matter (PM10 and PM2.5)
- Carbon Monoxide
- Particulate Matter
- Sulfur Dioxide

The federal standards were set to protect public health, including that of sensitive individuals; thus, the standards continue to change as more medical research is available regarding the health effects of the criteria pollutants. Primary federal standards are the levels of air quality necessary, with an adequate margin of safety, to protect the public health.

A State Implementation Plan is a document prepared by each state describing existing air quality conditions and measures that will be followed to attain and maintain federal standards. The State Implementation Plan for the State of California is administered by the ARB, which has overall responsibility for statewide air quality maintenance and air pollution prevention. California's State Implementation Plan incorporates individual federal attainment plans for regional air districts—air district prepares their federal attainment plan, which sent to ARB to be approved and incorporated into the California State Implementation Plan. Federal attainment plans include the technical foundation for understanding air quality (e.g., emission inventories and air quality monitoring), control measures and strategies, and enforcement mechanisms. See <http://www.arb.ca.gov/research/aaqs/aaqs.htm> for additional information on criteria pollutants and air quality standards.

The federal and state ambient air quality standards are summarized in Table 2 and can also be found at <http://www.arb.ca.gov/research/aaqs/aaqs2.pdf>.

Table 2: Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards ¹		National Standards ²		
		Concentrations ³	Method ⁴	Primary ^{3,5}	Secondary ^{3,6}	Method ⁷
Ozone (O ₃)	1-Hour	0.09 ppm	Ultraviolet Photometry	--	Same as Primary Standard	Ultraviolet Photometry
	8-Hour	0.070 ppm		0.070 ppm (147 µg/m ³)		
Respirable Particulate Matter (PM ₁₀) ⁸	24-Hour	50 µg/m ³	Gravimetric or Beta Attenuation	150 µg/m ³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m ³		--		
Fine Particulate Matter (PM _{2.5}) ⁸	24-Hour	--	--	35 µg/m ³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m ³	Gravimetric or Beta Attenuation	12 µg/m ³	15 µg/m ³	
Carbon Monoxide (CO)	1-Hour	20 ppm (23 µg/m ³)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 µg/m ³)	--	Non-Dispersive Infrared Photometry (NDIR)
	8-Hour	9.0 ppm (10 µg/m ³)		9 ppm (10 µg/m ³)	--	
	8-Hour (Lake Tahoe)	6 ppm (7 µg/m ³)		--	--	
Nitrogen Dioxide (NO ₂) ⁹	1-Hour	0.18 ppm (339 µg/m ³)	Gas Phase Chemiluminescence	100 ppb (188 µg/m ³)	--	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (357 µg/m ³)		0.053 ppm (100 µg/m ³)	Same as Primary Standard	
Sulfur Dioxide (SO ₂) ¹⁰	1-Hour	0.25 ppm (655 µg/m ³)	Ultraviolet Fluorescence	75 ppb (196 µg/m ³)	--	Ultraviolet Fluorescence; Spectrophotometry (Pararosaniline Method)
	3-Hour	--		--	0.5 ppm (1300 µg/m ³)	
	24-Hour	0.04 ppm (105 µg/m ³)		0.14 ppm (for certain areas) ¹⁰	--	
	Annual Arithmetic Mean	--		0.130 ppm (for certain areas) ¹⁰	--	
Lead ^{11,12}	30 Day Average	1.5 µg/m ³	Atomic Absorption	--	Same as Primary Standard	High Volume Sampler and Atomic Absorption
	Calendar Qtr	--		1.5 µg/m ³ (for certain areas) ¹²		
	Rolling 3-Month Average	--		0.15 µg/m ³		
Visibility Reducing Particles ¹³	8-Hour	See footnote 13	Beta Attenuation and Transmittance through Filter Tape	No National Standards		
Sulfates	24-Hour	25 µg/m ³	Ion Chromatography			
Hydrogen Sulfide	1-Hour	0.03 ppm (42 µg/m ³)	Ultraviolet Fluorescence			
Vinyl Chloride ¹¹	24-Hour	0.01 ppm (26 µg/m ³)	Gas Chromatography			

Notes:

- California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM₁₀, PM_{2.5}, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
- National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM₁₀, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m³ is equal to or less than one. For PM_{2.5}, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.
- Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
- Any equivalent measurement method which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.
- National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
- National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
- Reference method as described by the U.S. EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the U.S. EPA.

8. On December 14, 2012, the national annual PM2.5 primary standard was lowered from 15 $\mu\text{g}/\text{m}^3$ to 12.0 $\mu\text{g}/\text{m}^3$. The existing national 24-hour PM2.5 standards (primary and secondary) were retained at 35 $\mu\text{g}/\text{m}^3$, as was the annual secondary standard of 15 $\mu\text{g}/\text{m}^3$. The existing 24-hour PM10 standards (primary and secondary) of 150 $\mu\text{g}/\text{m}^3$ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.
9. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.
10. On June 2, 2010, a new 1-hour SO₂ standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO₂ national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.
11. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
12. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 $\mu\text{g}/\text{m}^3$ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.
13. In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

Several pollutants listed in Table 2 are not addressed in this analysis. Analysis of lead is not included in this report because the project is not anticipated to emit lead. Visibility-reducing particles are not explicitly addressed in this analysis because particulate matter is addressed. The project is not expected to generate or be exposed to vinyl chloride because proposed project uses do not utilize the chemical processes that create this pollutant and there are no such uses in the project vicinity. The proposed project is not expected to cause exposure to hydrogen sulfide because it would not generate hydrogen sulfide in any substantial quantity.

2.1.2 South Coast Air Quality Management District

The agency for air pollution control for the South Coast Air Basin (basin) is the South Coast Air Quality Management District (SCAQMD). SCAQMD is responsible for controlling emissions primarily from stationary sources. SCAQMD maintains air quality monitoring stations throughout the basin. SCAQMD, in coordination with the Southern California Association of Governments, is also responsible for developing, updating, and implementing the Air Quality Management Plan (AQMP) for the basin. An AQMP is a plan prepared and implemented by an air pollution district for a county or region designated as nonattainment of the federal and/or California ambient air quality standards. The term nonattainment area is used to refer to an air basin where one or more ambient air quality standards are exceeded.

Every three (3) years the SCAQMD prepares a new AQMP, updating the previous plan and having a 20-year horizon.

On March 23, 2017 CARB approved the 2016 AQMP. The 2016 AQMP is a regional blueprint for achieving the federal air quality standards and healthful air.

The 2016 AQMP includes both stationary and mobile source strategies to ensure that rapidly approaching attainment deadlines are met, that public health is protected to the maximum extent feasible, and that the region is not faced with burdensome sanctions if the Plan is not approved or if the NAAQS are not met on time. As with every AQMP, a comprehensive analysis of emissions, meteorology, atmospheric chemistry, regional growth projections, and the impact of existing control measures is updated with the latest data and methods. The most significant air quality challenge in the Basin is to reduce nitrogen oxide (NO_x) emissions sufficiently to meet the upcoming ozone standard deadlines. The primary goal of this Air Quality Management Plan is to meet clean air standards and protect public health, including ensuring benefits to environmental justice and disadvantaged communities. Now that the plan has been approved by CARB, it has been forwarded to the U.S. Environmental Protection Agency for its review. If approved by EPA, the plan becomes federally enforceable.

The 2012 AQMP built upon the approaches taken in the 2007 AQMP for the attainment of federal PM and ozone standards, and highlights the significant amount of reductions needed and the need to engage in interagency coordinated planning of mobile sources to meet all of the federal criteria pollutant standards. Compared with the 2007 AQMP, the 2012 AQMP utilized revised emissions inventory projections that use 2008 as the base year. On-road emissions are calculated using CARB EMFAC2011 emission factors and the transportation activity data provided by SCAG from their 2012 Regional Transportation Plan (2012 RTP). Off-road emissions were updated using CARB's 2011 In-Use Off-Road Fleet Inventory Model. Since the 2007 AQMP was finalized new area source categories such as liquid propane gas (LPG) transmission losses, storage tank and pipeline cleaning and degassing, and architectural colorants, were created and included in the emissions inventories. The 2012 AQMP also includes analysis of several additional sources of GHG emissions such as landfills and could also assist in reaching the GHG target goals in the AB32 Scoping Plan.

South Coast Air Quality Management District Rules

The AQMP for the basin establishes a program of rules and regulations administered by SCAQMD to obtain attainment of the state and federal standards. Some of the rules and regulations that apply to this Project include, but are not limited to, the following:

SCAQMD Rule 402 prohibits a person from discharging from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.

SCAQMD Rule 403 governs emissions of fugitive dust during construction and operation activities. Compliance with this rule is achieved through application of standard Best Management Practices, such as application of water or chemical stabilizers to disturbed soils, covering haul vehicles, restricting vehicle speeds on unpaved roads to 15 miles per hour, sweeping loose dirt from paved site access

roadways, cessation of construction activity when winds exceed 25 mph, and establishing a permanent ground cover on finished sites.

Rule 403 requires that fugitive dust be controlled with best available control measures so that the presence of such dust does not remain visible in the atmosphere beyond the property line of the emission source. In addition, Rule 403 requires implementation of dust suppression techniques to prevent fugitive dust from creating a nuisance off site. Applicable suppression techniques are indicated below and include but are not limited to the following:

- Apply nontoxic chemical soil stabilizers according to manufacturers' specifications to all inactive construction areas (previously graded areas in active for 10 days or more).
- Water active sites at least three times daily.
- Cover all trucks hauling dirt, sand, soil, or other loose materials, or maintain at least 2 feet of freeboard in accordance with the requirements of California Vehicle Code (CVC) section 23114.
- Pave construction access roads at least 100 feet onto the site from the main road.
- Reduce traffic speeds on all unpaved roads to 15 mph or less.
- Suspension of all grading activities when wind speeds (including instantaneous wind gusts) exceed 25 mph.
- Bumper strips or similar best management practices shall be provided where vehicles enter and exit the construction site onto paved roads or wash off trucks and any equipment leaving the site each trip.
- Replanting disturbed areas as soon as practical.
- During all construction activities, construction contractors shall sweep on-site and off-site streets if silt is carried to adjacent public thoroughfares, to reduce the amount of particulate matter on public streets.

SCAQMD Rule 1113 governs the sale, use, and manufacturing of architectural coating and limits the VOC content in paints and paint solvents. This rule regulates the VOC content of paints available during construction. Therefore, all paints and solvents used during construction and operation of project must comply with Rule 1113.

Idling Diesel Vehicle Trucks – Idling for more than 5 minutes in any one location is prohibited within California borders.

Rule 2702. The SCAQMD adopted Rule 2702 on February 6, 2009, which establishes a voluntary air quality investment program from which SCAQMD can collect funds from parties that desire certified GHG emission reductions, pool those funds, and use them to purchase or fund GHG emission reduction projects within two years, unless extended by the Governing Board. Priority will be given to projects that result in co-benefit emission reductions of GHG emissions and criteria or toxic air pollutants within environmental justice areas. Further, this voluntary program may compete with the cap-and-trade program identified for implementation in CARB's Scoping Plan, or a Federal cap and trade program.

2.2 Greenhouse Gas Regulatory Setting

2.2.1 International

Many countries around the globe have made an effort to reduce GHGs since climate change is a global issue.

Intergovernmental Panel on Climate Change. In 1988, the United Nations and the World Meteorological Organization established the Intergovernmental Panel on Climate Change to assess the scientific, technical and socio-economic information relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts, and options for adaptation and mitigation.

United Nations. The United States participates in the United Nations Framework Convention on Climate Change (UNFCCC) (signed on March 21, 1994). Under the Convention, governments gather and share information on greenhouse gas emissions, national policies, and best practices; launch national strategies for addressing greenhouse gas emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries; and cooperate in preparing for adaptation to the impacts of climate change.

The 2014 UN Climate Change Conference in Lima Peru provided a unique opportunity to engage all countries to assess how developed countries are implementing actions to reduce emissions.

Kyoto Protocol. The Kyoto Protocol is a treaty made under the UNFCCC and was the first international agreement to regulate GHG emissions. It has been estimated that if the commitments outlined in the Kyoto Protocol are met, global GHG emissions could be reduced by an estimated 5 percent from 1990 levels during the first commitment period of 2008 – 2012 (UNFCCC 1997). On December 8, 2012, the Doha Amendment to the Kyoto Protocol was adopted. The amendment includes: New commitments for Annex I Parties to the Kyoto Protocol who agreed to take on commitments in a second commitment period from 2013 – 2020; a revised list of greenhouse gases (GHG) to be reported on by Parties in the second commitment period; and Amendments to several articles of the Kyoto Protocol which specifically referenced issues pertaining to the first commitment period and which needed to be updated for the second commitment period.

2.2.2 National

Greenhouse Gas Endangerment. On December 2, 2009, the EPA announced that GHGs threaten the public health and welfare of the American people. The EPA also states that GHG emissions from on-road vehicles contribute to that threat. The decision was based on *Massachusetts v. EPA* (Supreme Court Case 05-1120) which argued that GHGs are air pollutants covered by the Clean Air Act and that the EPA has authority to regulate those emissions.

Clean Vehicles. Congress first passed the Corporate Average Fuel Economy law in 1975 to increase the fuel economy of cars and light duty trucks. The law has become more stringent over time. On May 19, 2009, President Obama put in motion a new national policy to increase fuel economy for all new cars and trucks sold in the United States. On April 1, 2010, the EPA and the Department of Transportation's

National Highway Safety Administration announced a joint final rule establishing a national program that would reduce greenhouse gas emissions and improve fuel economy for new cars and trucks sold in the United States.

The first phase of the national program would apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. They require these vehicles to meet an estimated combined average emissions level of 250 grams of carbon dioxide per mile, equivalent to 35.5 miles per gallon if the automobile industry were to meet this carbon dioxide level solely through fuel economy improvements. Together, these standards would cut carbon dioxide emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012-2016). The second phase of the national program would involve proposing new fuel economy and greenhouse gas standards for model years 2017 – 2025 by September 1, 2011.

On October 25, 2010, the EPA and the U.S. Department of Transportation proposed the first national standards to reduce greenhouse gas emissions and improve fuel efficiency of heavy-duty trucks and buses. For combination tractors, the agencies are proposing engine and vehicle standards that begin in the 2014 model year and achieve up to a 20 percent reduction in carbon dioxide emissions and fuel consumption by the 2018 model year. For heavy-duty pickup trucks and vans, the agencies are proposing separate gasoline and diesel truck standards, which phase in starting in the 2014 model year and achieve up to a 10 percent reduction for gasoline vehicles and 15 percent reduction for diesel vehicles by 2018 model year (12 and 17 percent respectively if accounting for air conditioning leakage). Lastly, for vocational vehicles, the agencies are proposing engine and vehicle standards starting in the 2014 model year which would achieve up to a 10 percent reduction in fuel consumption and carbon dioxide emissions by 2018 model year.

Mandatory Reporting of Greenhouse Gases. On January 1, 2010, the EPA started requiring large emitters of heat-trapping emissions to begin collecting GHG data under a new reporting system. Under the rule, suppliers of fossil fuels or industrial greenhouse gases, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of greenhouse gas emissions are required to submit annual reports to the EPA.

Climate Adaption Plan. The EPA Plan identifies priority actions the Agency will take to incorporate considerations of climate change into its programs, policies, rules and operations to ensure they are effective under future climatic conditions. The following link provides more information on the EPA Plan: <https://www.epa.gov/arc-x/planning-climate-change-adaptation>

2.2.3 California

California Code of Regulations (CCR) Title 24, Part 6. CCR Title 24, Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings (Title 24) were first established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. Although it was not originally intended to reduce GHG emissions,

electricity production by fossil fuels results in GHG emissions and energy efficient buildings require less electricity. Therefore, increased energy efficiency results in decreased GHG emissions.

The Energy Commission adopted 2008 Standards on April 23, 2008 and Building Standards Commission approved them for publication on September 11, 2008. These updates became effective on August 1, 2009. 2013 and 2016 standards have been approved and became effective July 1, 2014 and January 1, 2016, respectively.

California Code of Regulations (CCR) Title 24, Part 11. All buildings for which an application for a building permit is submitted on or after January 1, 2017 must follow the 2016 standards. All buildings for which an application for a building permit is submitted on or after January 1, 2014 must follow the 2013 standards. Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases greenhouse gas emissions. The following link provides more information on Title 24, Part 11:

<https://www.energy.ca.gov/title24/2016standards/index.html>

California Green Building Standards. On January 12, 2010, the State Building Standards Commission unanimously adopted updates to the California Green Building Standards Code, which went into effect on January 1, 2011. The Code is a comprehensive and uniform regulatory code for all residential, commercial and school buildings. CCR Title 24, Part 11: California Green Building Standards (Title 24) became effective in 2001 in response to continued efforts to reduce GHG emissions associated with energy consumption. CCR Title 24, Part 11 now require that new buildings reduce water consumption, employ building commissioning to increase building system efficiencies, divert construction waste from landfills, and install low pollutant-emitting finish materials. One focus of CCR Title 24, Part 11 is water conservation measures, which reduce GHG emissions by reducing electrical consumption associated with pumping and treating water. CCR Title 24, Part 11 has approximately 52 nonresidential mandatory measures and an additional 130 provisions for optional use. Some key mandatory measures for commercial occupancies include specified parking for clean air vehicles, a 20 percent reduction of potable water use within buildings, a 50 percent construction waste diversion from landfills, use of building finish materials that emit low levels of volatile organic compounds, and commissioning for new, nonresidential buildings over 10,000 square feet.

The California Green Building Standards Code does not prevent a local jurisdiction from adopting a more stringent code as state law provides methods for local enhancements. The Code recognizes that many jurisdictions have developed existing construction and demolition ordinances, and defers to them as the ruling guidance provided they provide a minimum 50-percent diversion requirement. The code also provides exemptions for areas not served by construction and demolition recycling infrastructure. State building code provides the minimum standard that buildings need to meet in order to be certified for occupancy. Enforcement is generally through the local building official. The following link provides more on CalGreen Building Standards:

<http://www.bsc.ca.gov/Home/CALGreen.aspx>

Executive Order S-3-05. California Governor issued Executive Order S-3-05, GHG Emission, in June 2005, which established the following targets:

- By 2010, California shall reduce greenhouse gas emissions to 2000 levels;
- By 2020, California shall reduce greenhouse gas emissions to 1990 levels.
- By 2050, California shall reduce greenhouse gas emissions to 80 percent below 1990 levels.

The executive order directed the secretary of the California Environmental Protection Agency (CalEPA) to coordinate a multi-agency effort to reduce GHG emissions to the target levels. To comply with the Executive Order, the secretary of CalEPA created the California Climate Action Team (CAT), made up of members from various state agencies and commissions. The team released its first report in March 2006. The report proposed to achieve the targets by building on the voluntary actions of businesses, local governments, and communities and through State incentive and regulatory programs.

Executive Order S-01-07. Executive Order S-1-07 was issued in 2007 and proclaims that the transportation sector is the main source of GHG emissions in the State, since it generates more than 40 percent of the State's GHG emissions. It establishes a goal to reduce the carbon intensity of transportation fuels sold in the State by at least ten percent by 2020. This Order also directs CARB to determine whether this Low Carbon Fuel Standard (LCFS) could be adopted as a discrete early-action measure as part of the effort to meet the mandates in AB 32.

On April 23, 2009 CARB approved the proposed regulation to implement the low carbon fuel standard. The low carbon fuel standard is anticipated to reduce GHG emissions by about 16 MMT per year by 2020. The low carbon fuel standard is designed to provide a framework that uses market mechanisms to spur the steady introduction of lower carbon fuels. The framework establishes performance standards that fuel producers and importers must meet each year beginning in 2011. Separate standards are established for gasoline and diesel fuels and the alternative fuels that can replace each. The standards are "back-loaded", with more reductions required in the last five years, than the first five years. This schedule allows for the development of advanced fuels that are lower in carbon than today's fuels and the market penetration of plug-in hybrid electric vehicles, battery electric vehicles, fuel cell vehicles, and flexible fuel vehicles. It is anticipated that compliance with the low carbon fuel standard will be based on a combination of both lower carbon fuels and more efficient vehicles.

Reformulated gasoline mixed with corn-derived ethanol at ten percent by volume and low sulfur diesel fuel represent the baseline fuels. Lower carbon fuels may be ethanol, biodiesel, renewable diesel, or blends of these fuels with gasoline or diesel as appropriate. Compressed natural gas and liquefied natural gas also may be low carbon fuels. Hydrogen and electricity, when used in fuel cells or electric vehicles are also considered as low carbon fuels for the low carbon fuel standard.

SB 97. Senate Bill 97 (SB 97) was adopted August 2007 and acknowledges that climate change is a prominent environmental issue that requires analysis under CEQA. SB 97 directed the Governor's Office of Planning and Research (OPR), which is part of the State Resource Agency, to prepare, develop,

and transmit to CARB guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions, as required by CEQA, by July 1, 2009. The Resources Agency was required to certify and adopt those guidelines by January 1, 2010.

Pursuant to the requirements of SB 97 as stated above, on December 30, 2009 the Natural Resources Agency adopted amendments to the state CEQA guidelines that address GHG emissions. The CEQA Guidelines Amendments changed 14 sections of the CEQA Guidelines and incorporate GHG language throughout the Guidelines. However, no GHG emissions thresholds of significance are provided and no specific mitigation measures are identified. The GHG emission reduction amendments went into effect on March 18, 2010 and are summarized below:

- Climate action plans and other greenhouse gas reduction plans can be used to determine whether a project has significant impacts, based upon its compliance with the plan.
- Local governments are encouraged to quantify the greenhouse gas emissions of proposed projects, noting that they have the freedom to select the models and methodologies that best meet their needs and circumstances. The section also recommends consideration of several qualitative factors that may be used in the determination of significance, such as the extent to which the given project complies with state, regional, or local GHG reduction plans and policies. OPR does not set or dictate specific thresholds of significance. Consistent with existing CEQA Guidelines, OPR encourages local governments to develop and publish their own thresholds of significance for GHG impacts assessment.
- When creating their own thresholds of significance, local governments may consider the thresholds of significance adopted or recommended by other public agencies, or recommended by experts.
- New amendments include guidelines for determining methods to mitigate the effects of greenhouse gas emissions in Appendix F of the CEQA Guidelines.
- OPR is clear to state that “to qualify as mitigation, specific measures from an existing plan must be identified and incorporated into the project; general compliance with a plan, by itself, is not mitigation.”
- OPR’s emphasizes the advantages of analyzing GHG impacts on an institutional, programmatic level. OPR therefore approves tiering of environmental analyses and highlights some benefits of such an approach.
- Environmental impact reports (EIRs) must specifically consider a project's energy use and energy efficiency potential.

AB 32. The California State Legislature enacted AB 32, the California Global Warming Solutions Act of 2006. AB 32 requires that greenhouse gases emitted in California be reduced to 1990 levels by the year 2020. “Greenhouse gases” as defined under AB 32 include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. ARB is the state agency charged with monitoring and regulating sources of greenhouse gases. AB 32 states the following:

Global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California. The potential adverse impacts of global warming include the

exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other human health-related problems.

The ARB Board approved the 1990 greenhouse gas emissions level of 427 million metric tons of carbon dioxide equivalent (MMTCO_{2e}) on December 6, 2007 (California Air Resources Board 2007). Therefore, emissions generated in California in 2020 are required to be equal to or less than 427 MMTCO_{2e}. Emissions in 2020 in a “business as usual” scenario are estimated to be 596 MMTCO_{2e}.

Under AB 32, the ARB published its Final Expanded List of Early Action Measures to Reduce Greenhouse Gas Emissions in California. Discrete early action measures are currently underway or are enforceable by January 1, 2010. The ARB has 44 early action measures that apply to the transportation, commercial, forestry, agriculture, cement, oil and gas, fire suppression, fuels, education, energy efficiency, electricity, and waste sectors. Of these early action measures, nine are considered discrete early action measures, as they are regulatory and enforceable by January 1, 2010. The ARB estimates that the 44 recommendations are expected to result in reductions of at least 42 MMTCO_{2e} by 2020, representing approximately 25 percent of the 2020 target.

The ARB’s Climate Change Scoping Plan (Scoping Plan) contains measures designed to reduce the State’s emissions to 1990 levels by the year 2020 (California Air Resources Board 2008). The Scoping Plan identifies recommended measures for multiple greenhouse gas emission sectors and the associated emission reductions needed to achieve the year 2020 emissions target—each sector has a different emission reduction target. Most of the measures target the transportation and electricity sectors. As stated in the Scoping Plan, the key elements of the strategy for achieving the 2020 greenhouse gas target include:

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards;
- Achieving a statewide renewables energy mix of 33 percent;
- Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system;
- Establishing targets for transportation-related greenhouse gas emissions for regions throughout California and pursuing policies and incentives to achieve those targets;
- Adopting and implementing measures pursuant to existing State laws and policies, including California’s clean car standards, goods movement measures, and the Low Carbon Fuel Standard; and
- Creating targeted fees, including a public goods charge on water use, fees on high global warming potential gases, and a fee to fund the administrative costs of the State’s long-term commitment to AB 32 implementation.

In addition, the Scoping Plan differentiates between “capped” and “uncapped” strategies. “Capped” strategies are subject to the proposed cap-and-trade program. The Scoping Plan states that the inclusion of these emissions within the cap-and-trade program will help ensure that the year 2020 emission targets are met despite some degree of uncertainty in the emission reduction estimates for any individual measure. Implementation of the capped strategies is calculated to achieve a sufficient amount of reductions by 2020 to achieve the emission target contained in AB 32. “Uncapped” strategies that will not be subject to the cap-and-trade emissions caps and requirements are provided as a margin of safety by accounting for additional greenhouse gas emission reductions.⁴

SB 375. Senate Bill 375 (SB 375) was adopted September 2008 and aligns regional transportation planning efforts, regional GHG emission reduction targets, and land use and housing allocation. SB 375 requires Metropolitan Planning Organizations (MPO) to adopt a sustainable communities strategy (SCS) or alternate planning strategy (APS) that will prescribe land use allocation in that MPOs Regional Transportation Plan (RTP). CARB, in consultation with each MPO, will provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. These reduction targets will be updated every eight years but can be updated every four years if advancements in emissions technologies affect the reduction strategies to achieve the targets. CARB is also charged with reviewing each MPO’s sustainable communities strategy or alternate planning strategy for consistency with its assigned targets.

The proposed project is located within the Southern California Association of Governments (SCAG), which has authority to develop the SCS or APS. For the SCAG region, the targets set by CARB are at eight percent below 2005 per capita GHG emissions levels by 2020 and 13 percent below 2005 per capita GHG emissions levels by 2035. On April 4, 2012, SCAG adopted the 2012-2035 Regional Transportation Plan / Sustainable Communities Strategy (RTP/SCS), which meets the CARB emission reduction requirements. The Housing Element Update is required by the State to be completed within 18 months after RTP/SCS adoption or by October 2013.

City and County land use policies, including General Plans, are not required to be consistent with the RTP and associated SCS or APS. However, new provisions of CEQA would incentivize, through streamlining and other provisions, qualified projects that are consistent with an approved SCS or APS and categorized as “transit priority projects.”

Assembly Bill 939 and Senate Bill 1374. Assembly Bill 939 (AB 939) requires that each jurisdiction in California to divert at least 50 percent of its waste away from landfills, whether through waste reduction, recycling or other means. Senate Bill 1374 (SB 1374) requires the California Integrated Waste Management Board to adopt a model ordinance by March 1, 2004 suitable for adoption by any local agency to require 50 to 75 percent diversion of construction and demolition of waste materials from landfills.

Executive Order S-13-08. Executive Order S-13-08 indicates that “climate change in California during the next century is expected to shift precipitation patterns, accelerate sea level rise and increase temperatures, thereby posing a serious threat to California’s economy, to the health and welfare of its

population and to its natural resources.” Pursuant to the requirements in the order, the 2009 California Climate Adaptation Strategy (California Natural Resource Agency 2009) was adopted, which is the “... first statewide, multi-sector, region-specific, and information-based climate change in California, identifying and exploring strategies to adapt to climate change, and specifying a direction for future research.

Executive Order B-30-15. Executive Order B-30-15, establishing a new interim statewide greenhouse gas emission reduction target to reduce greenhouse gas emissions to 40 percent below 1990 levels by 2030, was signed by Governor Brown in April 2015.

Executive Order B-29-15. Executive Order B-29-15, mandates a statewide 25% reduction in potable water usage and was signed into law on April 1, 2015.

Executive Order B-37-16. Executive Order B-37-16, continuing the State’s adopted water reduction, was signed into law on May 9, 2016. The water reduction builds off the mandatory 25% reduction called for in EO B-29-15.

2.2.4 South Coast Air Quality Management District

The Project is within the South Coast Air Basin, which is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). SCAQMD Regulation XXVII currently includes three rules:

- The purpose of Rule 2700 is to define terms and post global warming potentials.
- The purpose of Rule 2701, SoCal Climate Solutions Exchange, is to establish a voluntary program to encourage, quantify, and certify voluntary, high quality certified greenhouse gas emission reductions in the SCAQMD.
- Rule 2702, Greenhouse Gas Reduction Program, was adopted on February 6, 2009. The purpose of this rule is to create a Greenhouse Gas Reduction Program for greenhouse gas emission reductions in the SCAQMD. The SCAQMD will fund projects through contracts in response to requests for proposals or purchase reductions from other parties.

SCAQMD Threshold Development

The SCAQMD has established recommended significance thresholds for greenhouse gases for local lead agency consideration (“SCAQMD draft local agency threshold”). SCAQMD has published a five-tiered draft GHG threshold which includes a 10,000 metric ton of CO₂e per year for stationary/industrial sources and 3,000 metric tons of CO₂e per year significance threshold for residential/commercial projects (South Coast Air Quality Management District 2010c). Tier 3 is anticipated to be the primary tier by which the SCAQMD will determine significance for projects. The Tier 3 screening level for stationary sources is based on an emission capture rate of 90 percent for all new or modified projects. A 90-percent emission capture rate means that 90 percent of total emissions from all new or modified stationary source projects would be subject to CEQA analysis. The 90-percent capture rate GHG significance screening level in Tier 3 for stationary sources was derived using the SCAQMD’s annual Emissions Reporting Program.

The current draft thresholds consist of the following tiered approach:

- Tier 1 consists of evaluating whether or not the project qualifies for any applicable exemption under CEQA.
- Tier 2 consists of determining whether or not the project is consistent with a greenhouse gas reduction plan. If a project is consistent with a qualifying local greenhouse gas reduction plan, it does not have significant greenhouse gas emissions.
- Tier 3 consists of screening values, which the lead agency can choose but must be consistent. A project's construction emissions are averaged over 30 years and are added to a project's operational emissions. If a project's emissions are under one of the following screening thresholds, then the project is less than significant:
 - All land use types: 3,000 MTCO₂e per year
 - Based on land use types: residential is 3,500 MTCO₂e per year; commercial is 1,400 MTCO₂e per year; and mixed use is 3,000 MTCO₂e per year
- Tier 4 has the following options:
 - Option 1: Reduce emissions from business as usual by a certain percentage; this percentage is currently undefined
 - Option 2: Early implementation of applicable AB 32 Scoping Plan measures
 - Option 3: Year 2020 target for service populations (SP), which includes residents and employees: 4.8 MTCO₂e/SP/year for projects and 6.6 MTCO₂e/SP/year for plans;
 - Option 3, 2035 target: 3.0 MTCO₂e/SP/year for projects and 4.1 MTCO₂e/SP/year for plans
- Tier 5 involves mitigation offsets to achieve target significance threshold.

2.2.5 City of Moreno Valley

City of Moreno Valley General Plan

Local jurisdictions, such as the City of Moreno Valley, have the authority and responsibility to reduce air pollution through its police power and decision-making authority. Specifically, the City is responsible for the assessment and mitigation of air emissions resulting from its land use decisions. The City is also responsible for the implementation of transportation control measures as outlined in the 2016 AQMP. Examples of such measures include bus turnouts, energy-efficient streetlights, and synchronized traffic signals. In accordance with CEQA requirements and the CEQA review process, the City assesses the air quality impacts of new development projects, requires mitigation of potentially significant air quality impacts by conditioning discretionary permits, and monitors and enforces implementation of such mitigation.

In accordance with the CEQA requirements, the City does not, however, have the expertise to develop plans, programs, procedures, and methodologies to ensure that air quality within the City and region will meet federal and state standards. Instead, the City relies on the expertise of the SCAQMD and

utilizes the SCAQMD CEQA Handbook as the guidance document for the environmental review of plans and development proposals within its jurisdiction.

The City of Moreno Valley adopted their General Plan in July 2006. The Safety Element in the General Plan, contains the following air quality-related objectives and policies that are applicable to the proposed project:

Objective 6.6

Promote land use patterns that reduce daily automotive trips and reduce trip distance for work, shopping, school, and recreation.

Policies

- 6.6.1 Provide sites for new neighborhood commercial facilities within close proximity to the residential areas they serve.
- 6.6.2 Provide multi-family residential development sites in close proximity to neighborhood commercial centers in order to encourage pedestrian instead of vehicular travel.
- 6.6.3 Locate neighborhood parks in close proximity to the appropriate concentration of residents in order to encourage pedestrian and bicycle travel to local recreation areas.

Objective 6.7

Reduce mobile and stationary source air pollutant emissions.

- 6.7.1 Cooperate with regional efforts to establish and implement regional air quality strategies and tactics.
- 6.7.5 Require grading activities to comply with SCAQMD's Rule 403 regarding the control of fugitive dust.
- 6.7.6 Require building construction to comply with the energy conservation requirements of Title 24 of the California Administrative Code.

City of Moreno Valley Energy Efficiency and Climate Action Strategy

The City of Moreno Valley has adopted the City of Moreno Valley Energy Efficiency and Climate Action Strategy (October 9, 2012), which, along with the City of Moreno Valley Greenhouse Gas Analysis (February 2012) detail potential programs and policies to reduce overall City energy consumption and increase the use of renewable energy. The Greenhouse Gas Analysis develops a target of a 15 percent decrease in GHG emissions over 2007 levels by 2020. The Greenhouse Gas Analysis has been prepared to assist the City in conforming to the GHG emissions reductions as mandated under AB 32. Consistent with the CARB Scoping Plan, the City of Moreno Valley has chosen a reduction target of 15 percent below 2007 GHG emissions levels by 2020.

The reduction policies in the Energy Efficiency and Climate Action Strategy include:

- R2-T1:** Land Use Based Trips and VMT Reduction Policies. Encourage the development of Transit Priority Projects along High Quality Transit Corridors identified in the SCAG Sustainable Communities Plan, to allow a reduction in vehicle miles traveled.
- R2-T3:** Employment-Based Trip Reductions. Require a Transportation Demand Management (TDM) program for new development to reduce automobile travel by encouraging ride-sharing, carpooling, and alternative modes of transportation.
- R2-E1:** New Construction Residential Energy Efficiency Requirements. Require energy efficient design for all new residential buildings to be 10% beyond the current Title 24 standards.
- R2-E2:** New Construction Residential Renewable Energy. Facilitate the use of renewable energy (such as solar [photovoltaic] panels or small wind turbines) for new residential developments. Alternative approach would be the purchase of renewable energy resources off-site.
- R2-E5:** New Construction Commercial Energy Efficiency Requirements. Require energy efficient design for all new commercial buildings to be 10% beyond the current Title 24 standards. (Reach Code).
- R3-E1:** Energy Efficient Development, and Renewable Energy Deployment Facilitation and Streamlining. Updating of codes and zoning requirements and guidelines to further implement green building practices. This could include incentives for energy efficient projects.
- R3-L2:** Heat Island Plan. Develop measures that address “heat islands.” Potential measures include using strategically placed shade trees, using paving materials with a Solar Reflective Index of at least 29, an open grid pavement system, or covered parking.
- R2-W1:** Water Use Reduction Initiative. Consider adopting a per capita water use reduction goal which mandates the reduction of water use of 20 percent per capita with requirements applicable to new development and with cooperative support of the water agencies.
- R3-W1:** Water Efficiency Training and Education. Work with EMWD and local water companies to implement a public information and education program that promotes water conservation.
- R2-S1:** City Diversion Program. This measure sets a target for the City to increase the waste diverted from landfills to 75% by 2020.

With regards to reducing GHG emissions, the City has identified the following achievement goals within the Greenhouse Gas Analysis:

- Provide a list of specific measures that will reduce GHG emissions from community sources and municipal operations.
- Reduce emissions attributable to Moreno Valley to levels at or below 1990 GHG emissions by year 2020 consistent with the target reductions of AB 32.

Therefore, to determine whether the project's GHG emissions are significant, this analysis uses the SCAQMD draft local agency tier 3 threshold screening threshold of 3,000 MTCO_{2e} per year for all land use types.

The project will be subject to the latest requirements of the California Green Building and Title 24 Energy Efficiency Standards (currently 2016) which would reduce project-related greenhouse gas emissions.

3.0 Setting

3.1 Existing Physical Setting

The project site is located in the City of Moreno Valley, which is part of the South Coast Air Basin (SCAB) that includes all of Orange County as well as the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties. The South Coast Air Basin is located on a coastal plain with connecting broad valleys and low hills to the east. Regionally, the South Coast Air Basin is bounded by the Pacific Ocean to the southwest and high mountains to the east forming the inland perimeter.

3.1.1 Local Climate and Meteorology

Dominant airflows provide the driving mechanism for transport and dispersion of air pollution. The mountains surrounding the region form natural horizontal barriers to the dispersion of air contaminants. Air pollution created in the coastal areas and around the Los Angeles area is transported inland until it reaches the mountains where the combination of mountains and inversion layers generally prevent further dispersion. This poor ventilation results in a gradual degradation of air quality from the coastal areas to inland areas. Air stagnation may occur during the early evening and early morning periods of transition between day and nighttime flows. The region also experiences periods of hot, dry winds from the desert, known as Santa Ana winds. If the Santa Ana winds are strong, they can surpass the sea breeze, which blows from the ocean to the land, and carry the suspended dust and pollutants out to the ocean. If the winds are weak, they are opposed by the sea breeze and cause stagnation, resulting in high pollution events.

The annual average temperature varies little throughout much of the basin, ranging from the low to middle 60s, measured in degrees Fahrenheit (°F). With more pronounced oceanic influence, coastal areas show less variability in annual minimum and maximum temperatures than inland areas where the project site is located. The majority of the annual rainfall in the basin occurs between November and April. Summer rainfall is minimal and is generally limited to scattered thunderstorms in the coastal regions and slightly heavier showers in the eastern portion of the basin along the coastal side of the mountains. Year-to-year patterns in rainfall are unpredictable because of fluctuations in the weather.

Temperature inversions limit the vertical depth through which pollution can be mixed. Among the most common temperature inversions in the basin are radiation inversions, which form on clear winter nights when cold air off mountains sink to the valley floor while the air aloft over the valley remains warm. These inversions, in conjunction with calm winds, trap pollutants near the source. Other types of temperature inversions that affect the basin include marine, subsidence, and high-pressure inversions.

Summers are often periods of hazy visibility and occasionally unhealthy air. Strong temperature inversions may occur that limit the vertical depth through which air pollution can be dispersed. Air pollutants concentrate because they cannot rise through the inversion layer and disperse. These inversions are more common and persistent during the summer months. Over time, sunlight produces photochemical reactions within this inversion layer that creates ozone, a particularly harmful air

pollutant. Occasionally, strong thermal convections occur which allows the air pollutants to rise high enough to pass over the mountains and ultimately dilute the smog cloudtrap pollutants such as automobile exhaust near their source. While these inversions may lead to air pollution “hot spots” in heavily developed coastal areas of the basin, there is not enough traffic in inland valleys to cause any winter air pollution problems. Despite light wind conditions, especially at night and in the early morning, winter is generally a period of good air quality in the project vicinity.

In the winter, light nocturnal winds result mainly from the drainage of cool air off of the mountains toward the valley floor while the air aloft over the valley remains warm. This forms a type of inversion known as a radiation inversion. Such winds are characterized by stagnation and poor local mixing and trap pollutants such as automobile exhaust near their source. While these inversions may lead to air pollution “hot spots” in heavily developed coastal areas of the basin, there is not enough traffic to cause any winter air pollution problems. Despite light wind conditions, especially at night and in the early morning, winter is generally a period of good air quality in the project vicinity.

The temperature and precipitation levels for the City of Riverside, closest monitoring station to the project site, are in Table 3. Table 3 shows that August is typically the warmest month and December is typically the coolest month. Rainfall in the project area varies considerably in both time and space. Almost all the annual rainfall comes from the fringes of mid-latitude storms from late November to early April, with summers being almost completely dry.

Table 3: Meteorological Summary

Month	Temperature (°F)		Average Precipitation (inches)
	Average High	Average Low	
January	67.2	42.6	2.03
February	68.0	44.2	2.32
March	71.1	46.2	1.78
April	75.7	49.3	0.68
May	80.6	53.9	0.23
June	86.9	57.4	0.08
July	93.5	61.6	0.04
August	94.6	62.3	0.09
September	90.7	59.3	0.15
October	82.6	53.4	0.42
November	71.4	45.1	0.79
December	67.4	42.1	1.43
Annual Average	79.4	51.6	10.0
Notes:			
¹ Source: https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca7473			

3.1.2 Local Air Quality

The SCAQMD has divided the South Coast Air Basin into 38 air-monitoring areas with a designated ambient air monitoring station representative of each area. The project site is located in the City of Moreno Valley in the Perris Valley (Area 24). The nearest air monitoring station to the project site is

the Perris Station. The Perris Station is located approximately 9.78 miles southwest of the project site, however this location does not provide all ambient weather data. Therefore, additional data was pulled from the Riverside-Rubidoux Station (Riverside Station) for nitrogen dioxide and ultra-fine particulates (PM_{2.5}) SCAQMD and the historical data for the Perris Valley (Area 24) for both sulfur dioxide and carbon monoxide to provide the existing levels. The Riverside Station is located approximately 15.92 miles northwest of the project site. Table 4 presents the monitored pollutant levels within the vicinity. However, it should be noted that due to the air monitoring station distance from the project site, recorded air pollution levels at the air monitoring station reflect with varying degrees of accuracy, local air quality conditions at the project site.

Table 4: Local Area Air Quality Levels from the Perris/Riverside Monitoring Stations

Pollutant (Standard) ²	Year		
	2016	2017	2018
Ozone:			
Maximum 1-Hour Concentration (ppm)	0.131	0.120	0.117
Days > CAAQS (0.09 ppm)	23	33	31
Maximum 8-Hour Concentration (ppm)	0.098	0.105	0.103
Days > NAAQS (0.07 ppm)	55	80	67
Days > CAAQS (0.070 ppm)	30	52	47
Carbon Monoxide:			
Maximum 1-Hour Concentration (ppm)	-	-	-
Days > NAAQS (20 ppm)	-	-	-
Maximum 8-Hour Concentration (ppm)	-	-	-
Days > NAAQS (9 ppm)	-	-	-
Nitrogen Dioxide:			
Maximum 1-Hour Concentration (ppm)	0.073	0.063	0.055
Days > NAAQS (0.25 ppm)	0	0	0
Sulfur Dioxide:			
Maximum 1-Hour Concentration (ppm)	-	-	-
Days > CAAQS (0.25 ppm)	-	-	-
Inhalable Particulates (PM₁₀):			
Maximum 24-Hour Concentration (ug/m ³)	76.0	75.4	64.4
Days > NAAQS (150 ug/m ³)	0	0	0
Days > CAAQS (50 ug/m ³)	5	11	2
Annual Average (ug/m ³)	32.2	32.6	30.2
Annual > NAAQS (50 ug/m ³)	No	No	No
Annual > CAAQS (20 ug/m ³)	Yes	Yes	Yes
Ultra-Fine Particulates (PM_{2.5}):			
Maximum 24-Hour Concentration (ug/m ³)	60.8	50.3	68.3
Days > NAAQS (35 ug/m ³)	5	7	3
Annual Average (ug/m ³)	12.5	12.2	12.5
Annual > NAAQS (15 ug/m ³)	No	No	No
Annual > CAAQS (12 ug/m ³)	Yes	Yes	Yes
¹ Source: obtained from https://www.aqmd.gov/home/air-quality/air-quality-data-studies/historical-data-by-year and/or https://www.arb.ca.gov/adam/topfour/topfour1.php ² CAAQS = California Ambient Air Quality Standard; NAAQS = National Ambient Air Quality Standard; ppm = parts per million ³ No data available.			

The monitoring data presented in Table 4 shows that ozone and particulate matter (PM10 and PM2.5) are the air pollutants of primary concern in the project area, which are detailed below.

Ozone

During the 2016 to 2018 monitoring period, the State 1-hour concentration standard for ozone has been exceeded between 23 and 33 days each year at the Perris Station. The State 8-hour ozone standard has been exceeded between 30 and 52 days each year over the past three years at the Perris Station. The Federal 8-hour ozone standard has been exceeded between 55 and 80 days each year over the past three years at the Perris Station.

Ozone is a secondary pollutant as it is not directly emitted. Ozone is the result of chemical reactions between other pollutants, most importantly hydrocarbons and NO₂, which occur only in the presence of bright sunlight. Pollutants emitted from upwind cities react during transport downwind to produce the oxidant concentrations experienced in the area. Many areas of the SCAQMD contribute to the ozone levels experienced at the monitoring station, with the more significant areas being those directly upwind.

Carbon Monoxide

CO is another important pollutant that is due mainly to motor vehicles. The Perris Valley Area did not record an exceedance of the state or federal 1-hour or 8-hour CO standards for the last three years.

Nitrogen Dioxide

The Riverside Station did not record an exceedance of the State or Federal NO₂ standards for the last three years.

Sulfur Dioxide

The Perris Valley Area did not record an exceedance of the State SO₂ standards for the last three years.

Particulate Matter

During the 2016 to 2018 monitoring period, the State 24-hour concentration standard for PM10 was exceeded between two and 11 days each year at the Perris Station. Over the same time period the Federal 24-hour and annual standards for PM10 have not been exceeded at the Perris Station.

During the 2016 to 2018 monitoring period, the Federal 24-hour standard for PM2.5 was exceeded between three and seven days each year at the Riverside Station.

According to the EPA, some people are much more sensitive than others to breathing fine particles (PM10 and PM2.5). People with influenza, chronic respiratory and cardiovascular diseases, and the elderly may suffer worsening illness and premature death due to breathing these fine particles. People with bronchitis can expect aggravated symptoms from breathing in fine particles. Children may experience decline in lung function due to breathing in PM10 and PM2.5. Other groups considered sensitive are smokers and people who cannot breathe well through their noses. Exercising athletes are also considered sensitive, because many breathe through their mouths during exercise.

3.1.3 Attainment Status

The EPA and the ARB designate air basins where ambient air quality standards are exceeded as “nonattainment” areas. If standards are met, the area is designated as an “attainment” area. If there is inadequate or inconclusive data to make a definitive attainment designation, they are considered “unclassified.” National nonattainment areas are further designated as marginal, moderate, serious, severe, or extreme as a function of deviation from standards. Each standard has a different definition, or ‘form’ of what constitutes attainment, based on specific air quality statistics. For example, the Federal 8-hour CO standard is not to be exceeded more than once per year; therefore, an area is in attainment of the CO standard if no more than one 8-hour ambient air monitoring values exceeds the threshold per year. In contrast, the federal annual PM_{2.5} standard is met if the three-year average of the annual average PM_{2.5} concentration is less than or equal to the standard. Table 5 lists the attainment status for the criteria pollutants in the basin.

Table 5: South Coast Air Basin Attainment Status

Pollutant	Averaging Time	National Standards ¹	Attainment Date ²	California Standards ³
1979 1-Hour Ozone ⁴	1-Hour (0.12 ppm)	Nonattainment (Extreme)	11/15/2010 (Not attained ⁴)	Extreme Nonattainment
1997 8-Hour Ozone ⁵	8-Hour (0.08 ppm)	Nonattainment (Extreme)	6/15/2024	Nonattainment
2008 8-Hour Ozone	8-Hour (0.075 ppm)	Nonattainment (Extreme)	12/31/2032	
2015 8-Hour Ozone	8-Hour (0.070 ppm)	Designations Pending	~2037	
CO	1-Hour (35 ppm) 8-Hour (9 ppm)	Attainment (Maintenance)	6/11/2007 (Attained)	Maintenance
NO ₂ ⁶	1-Hour (100 ppb) Annual (0.053 ppm)	Attainment (Maintenance)	9/22/1998 (Attained)	Attainment
SO ₂ ⁷	1-Hour (75 ppb)	Designations Pending	Pending	Attainment
	24-Hour (0.14 ppm) Annual (0.03 ppm)	Unclassifiable/ Attainment	3/19/1979 (Attained)	
PM10	24-Hour (150 µg/m ³)	Nonattainment (Serious) ⁸	12/31/2006 (Redesignation request submitted) ⁸	Nonattainment
PM2.5	24-Hour (35 µg/m ³)	Nonattainment	12/31/2006 (Redesignation request submitted) ⁸	Unclassified
Lead	3-Months Rolling (0.15 µg/m ³)	Nonattainment (Partial) ⁹	12/31/2015	Nonattainment (Partial) ⁹

Notes:
¹ Obtained from Draft 2012 AQMP, SCAQMD, 2012. EPA often only declares Nonattainment areas; everywhere else is listed as Unclassified/Attainment or Unclassifiable.
² A design value below the NAAQS for data through the full year or smog season prior to the attainment date is typically required for attainment demonstration.
³ Obtained from <http://www.arb.ca.gov/design/adm/adm.htm>.
⁴ 1-hour O₃ standard (0.13 ppm) was revoked, effective June 15, 2005; however, the Basin has not attained this standard based on 2008-2010 data has some continuing obligations under the former standard.
⁵ 1997 8-hour O₃ standard (0.08 ppm) was reduced (0.075 ppm), effective May 27, 2008; the 1997 O₃ standard and most related implementation rules remain in place until the 1997 standard is revoked by U.S. EPA.
⁶ New NO₂ 1-hour standard, effective August 2, 2010; attainment designations June, 2013; annual NO₂ standard retained.
⁷ The 1971 annual and 24-hour SO₂ standards were revoked, effective August 23, 2010; however, these 1971 standards will remain in effect until one year after U.S. EPA promulgates area designations for the 2010 SO₂ 1-hour standard. Area designations expected in 2012, with SSAB designated Unclassifiable/Attainment.
⁸ Annual PM10 standard was revoked, effective December 18, 2006; redesignation request to Attainment of the 24-hour PM10 standard is pending with U.S. EPA
⁹ Partial Nonattainment designation - Los Angeles County portion of Basin only.

3.2 Greenhouse Gases

Constituent gases of the Earth’s atmosphere, called atmospheric greenhouse gases (GHG), play a critical role in the Earth’s radiation amount by trapping infrared radiation emitted from the Earth’s

surface, which otherwise would have escaped to space. Prominent greenhouse gases contributing to this process include carbon dioxide (CO₂), methane (CH₄), ozone, water vapor, nitrous oxide (N₂O), and chlorofluorocarbons (CFCs). This phenomenon, known as the Greenhouse Effect, is responsible for maintaining a habitable climate. Anthropogenic (caused or produced by humans) emissions of these greenhouse gases in excess of natural ambient concentrations are responsible for the enhancement of the Greenhouse Effect and have led to a trend of unnatural warming of the Earth's natural climate, known as global warming or climate change. Emissions of gases that induce global warming are attributable to human activities associated with industrial/manufacturing, agriculture, utilities, transportation, and residential land uses. Transportation is responsible for 41 percent of the State's greenhouse gas emissions, followed by electricity generation. Emissions of CO₂ and nitrous oxide (NO₂) are byproducts of fossil fuel combustion. Methane, a potent greenhouse gas, results from off-gassing associated with agricultural practices and landfills. Sinks of CO₂, where CO₂ is stored outside of the atmosphere, include uptake by vegetation and dissolution into the ocean. Table 6 provides a description of each of the greenhouse gases and their global warming potential.

Additional information is available: <https://www.arb.ca.gov/cc/inventory/data/data.htm>

<Table 6 on next page>

Table 6: Description of Greenhouse Gases

Greenhouse Gas	Description and Physical Properties	Sources
Nitrous oxide	Nitrous oxide (N ₂ O), also known as laughing gas is a colorless gas. It has a lifetime of 114 years. Its global warming potential is 298.	Microbial processes in soil and water, fuel combustion, and industrial processes. In addition to agricultural sources, some industrial processes (nylon production, nitric acid production) also emit N ₂ O.
Methane	Methane (CH ₄) is a flammable gas and is the main component of natural gas. It has a lifetime of 12 years. Its global warming potential is 25.	A natural source of CH ₄ is from the decay of organic matter. Methane is extracted from geological deposits (natural gas fields). Other sources are from the decay of organic material in landfills, fermentation of manure, and cattle farming.
Carbon dioxide	Carbon dioxide (CO ₂) is an odorless, colorless, natural greenhouse gas. Carbon dioxide's global warming potential is 1. The concentration in 2005 was 379 parts per million (ppm), which is an increase of about 1.4 ppm per year since 1960.	Natural sources include decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; evaporation from oceans; and volcanic outgassing. Anthropogenic sources are from burning coal, oil, natural gas, and wood.
Chlorofluorocarbons	CFCs are nontoxic, nonflammable, insoluble, and chemically unreactive in the troposphere (the level of air at the earth's surface). They are gases formed synthetically by replacing all hydrogen atoms in methane or methane with chlorine and/or fluorine atoms. Global warming potentials range from 3,800 to 8,100.	Chlorofluorocarbons were synthesized in 1928 for use as refrigerants, aerosol propellants, and cleaning solvents. They destroy stratospheric ozone, therefore their production was stopped as required by the Montreal Protocol.
Hydrofluorocarbons	Hydrofluorocarbons (HFCs) are a group of greenhouse gases containing carbon, chlorine, and at least one hydrogen atom. Global warming potentials range from 140 to 11,700.	Hydrofluorocarbons are synthetic manmade chemicals used as a substitute for chlorofluorocarbons in applications such as automobile air conditioners and refrigerants.
Perfluorocarbons	Perfluorocarbons (PFCs) have stable molecular structures and only break down by ultraviolet rays about 60 kilometers above the Earth's surface. They have a lifetime 10,000 to 50,000 years. They have a global warming potential range of 6,200 to 9,500.	Two main sources of perfluorocarbons are primary aluminum production and semiconductor manufacturing.
Sulfur hexafluoride	Sulfur hexafluoride (SF ₆) is an inorganic, odorless, colorless, and nontoxic, nonflammable gas. It has a lifetime of 3,200 years. It has a high global warming potential, 23,900.	This gas is manmade and used for insulation in electric power transmission equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.
<p>Notes:</p> <ol style="list-style-type: none"> Sources: Intergovernmental Panel on Climate Change 2014a and Intergovernmental Panel on Climate Change 2014b. https://www.ipcc.ch/publications_and_data/ar4/wg1/en/ch2s2-10-2.html 		

4.0 Modeling Parameters and Assumptions

4.1 Construction

Typical emission rates from construction activities were obtained from CalEEMod Version 2016.3.2. CalEEMod is a computer model published by the SCAQMD for estimating air pollutant emissions. The CalEEMod program uses the EMFAC2014 computer program to calculate the emission rates specific for the northwestern portion of Riverside County for construction-related employee vehicle trips and the OFFROAD2011 computer program to calculate emission rates for heavy truck operations. EMFAC2014 and OFFROAD2011 are computer programs generated by CARB that calculates composite emission rates for vehicles. Emission rates are reported by the program in grams per trip and grams per mile or grams per running hour. Using CalEEMod, the peak daily air pollutant emissions were calculated and presented below. These emissions represent the highest level of emissions for each of the construction phases in terms of air pollutant emissions.

The analysis assesses the emissions associated with the construction of the proposed project as indicated in Table 1. Per the project-specific traffic impact analysis (TJW Engineering, Inc.) the proposed project is to be operational in 2024; therefore, construction is estimated to start no sooner than mid-February 2023 and end by the beginning of January 2024. The phases of the construction activities which have been analyzed below are: 1) site preparation, 2) grading, 3) building, 4) paving, and 5) architectural coating. For details on construction modeling and construction equipment for each phase, please see Appendix A.

The project will be required to comply with existing SCAQMD rules for the reduction of fugitive dust emissions. SCAQMD Rule 403 establishes these procedures. Compliance with this rule is achieved through application of standard best management practices in construction and operation activities, such as application of water or chemical stabilizers to disturbed soils, managing haul road dust by application of water, covering haul vehicles, restricting vehicle speeds on unpaved roads to 15 mph, sweeping loose dirt from paved site access roadways, cessation of construction activity when winds exceed 25 mph and establishing a permanent, stabilizing ground cover on finished sites. In addition, projects that disturb 50 acres or more of soil or move 5,000 cubic yards of materials per day are required to submit a Fugitive Dust Control Plan or a Large Operation Notification Form to SCAQMD. Based on the size of the Project area [approximately 1.25 acres (total site is approximately 1.7 acres with an existing market, cell tower, and parking lot covering approximately 0.45 acres that are to remain)] and the fact that the project won't export more than 5,000 cubic yards of material a day a Fugitive Dust Control Plan or Large Operation Notification would not be required.

SCAQMD's Rule 403 minimum requirements require that the application of the best available dust control measures are used for all grading operations and include the application of water or other soil stabilizers in sufficient quantity to prevent the generation of visible dust plumes. Compliance with Rule 403 would require the use of water trucks during all phases where earth moving operations would occur. Compliance with Rule 403 is required.

4.2 Operations

Operational or long-term emissions occur over the life of the Project. Both mobile and area sources generate operational emissions. Area source emissions arise from consumer product usage, heaters that consume natural gas, gasoline-powered landscape equipment, and architectural coatings (painting). Mobile source emissions from motor vehicles are the largest single long-term source of air pollutants from the operation of the Project. Small amounts of emissions would also occur from area sources such as the consumption of natural gas for heating, hearths, from landscaping emissions, and consumer product usage. The operational emissions were estimated using the latest version of CalEEMod.

Mobile Sources

Mobile sources include emissions from the additional vehicle miles generated from the proposed project. The vehicle trips associated with the proposed project are based upon the trip generation rates given in the project-specific traffic impact analysis (TJW Engineering, Inc.) which uses the ITE 10th Trip Generation Manual. The traffic study shows a trip generation rate of 172.01 trips per fuel pump for the gas station, 112.18 trips per thousand square feet for the sit down restaurant, and 37.75 trips per thousand square feet for the retail use.

The program then applies the emission factors for each trip which is provided by the EMFAC2014 model to determine the vehicular traffic pollutant emissions. The CalEEMod default trip lengths were used in this analysis. Please see CalEEMod output comments sections in Appendix A and B for details.

Area Sources

Area sources include emissions from consumer products, landscape equipment and architectural coatings. Landscape maintenance includes fuel combustion emissions from equipment such as lawn mowers, rototillers, shredders/grinders, blowers, trimmers, chain saws, and hedge trimmers, as well as air compressors, generators, and pumps. As specifics were not known about the landscaping equipment fleet, CalEEMod defaults were used to estimate emissions from landscaping equipment.

Per SCAQMD Rule 1113 as amended on June 3, 2011, the architectural coatings that would be applied after January 1, 2014 will be limited to an average of 50 grams per liter or less and the CalEEMod model default was utilized as the new model takes this rule into account.

Energy Usage

2016.3.2 CalEEMod defaults were utilized.

4.3 Localized Construction Analysis

The SCAQMD has published a "Fact Sheet for Applying CalEEMod to Localized Significance Thresholds" (South Coast Air Quality Management District 2011b). CalEEMod calculates construction emissions based on the number of equipment hours and the maximum daily disturbance activity possible for each piece of equipment. In order to compare CalEEMod reported emissions against the localized significance threshold lookup tables, the CEQA document should contain in its project design features or its mitigation measures the following parameters:

1. The off-road equipment list (including type of equipment, horsepower, and hours of operation) assumed for the day of construction activity with maximum emissions.
2. The maximum number of acres disturbed on the peak day.
3. Any emission control devices added onto off-road equipment.
4. Specific dust suppression techniques used on the day of construction activity with maximum emissions.

The construction equipment showing the equipment associated with the maximum area of disturbance is shown in Table 7.

Table 7: Construction Equipment Assumptions¹

Activity	Equipment	Number	Acres/8hr-day	Total Acres
Site Preparation	Graders	1	0.5	0.5
	Tractors/Loaders/Backhoes	1	0.5	0.5
	Rubber Tired Dozers	1	0.5	0.5
Total Per Phase				1.5
Grading	Graders	1	0.5	0.5
	Rubber Tired Dozers	1	0.5	0.5
	Tractors/Loaders/Backhoes	1	0.5	0.5
Total Per Phase				1.5
Notes:				
¹ Source: South Coast AQMD, Fact Sheet for Applying CalEEMod to Localized Significance Thresholds. http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/caleemod-guidance.pdf?sfvrsn=2				

As shown in Table 7, the maximum number of acres disturbed in a day would be 1.5 acres.

The local air quality emissions from construction were analyzed using the SCAQMD's Mass Rate Localized Significant Threshold Look-up Tables and the methodology described in Localized Significance Threshold Methodology, prepared by SCAQMD, revised July 2008. The Look-up Tables were developed by the SCAQMD in order to readily determine if the daily emissions of CO, NOx, PM10, and PM2.5 from the proposed project could result in a significant impact to the local air quality. The emission thresholds were based on the Perris Valley source receptor area (SRA 24) and a disturbance of 1 acre per day, to be conservative, at a distance of 25 meters (82 feet). According to LST methodology, any receptor located closer than 25 meters should be based on the 25 meter threshold. The closest receptors are adjacent to the east of the site.

4.4 Localized Operational Analysis

For operational emissions, the screening tables for a disturbance area of 1 acre, to be conservative, and a distance of 25 meters were used to determine significance. The tables were compared to the project's onsite operational emissions.

5.0 Thresholds of Significance

5.1 Air Quality Thresholds of Significance

5.1.1 CEQA Guidelines for Air Quality

The CEQA Guidelines define a significant effect on the environment as “a substantial, or potentially substantial, adverse change in the environment.” To determine if a project would have a significant impact on air quality, the type, level, and impact of emissions generated by the project must be evaluated.

The following air quality significance thresholds are contained in Appendix G of the CEQA Guidelines. A significant impact would occur if the project would:

- a) Conflict with or obstruct implementation of the applicable air quality plan;
- b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable national or state ambient air quality standard;
- c) Expose sensitive receptors to substantial pollutant concentrations; or
- d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

While the final determination of whether a project is significant is within the purview of the Lead Agency pursuant to Section 15064(b) of the CEQA Guidelines, SCAQMD recommends that its quantitative air pollution thresholds be used to determine the significance of project emissions. If the Lead Agency finds that the project has the potential to exceed these air pollution thresholds, the project should be considered to have significant air quality impacts. There are daily emission thresholds for construction and operation of a proposed project in the basin.

5.1.2 Regional Significance Thresholds for Construction Emissions

The following CEQA significance thresholds for construction emissions are established for the Basin:

- 75 pounds per day (lbs/day) of VOC
- 100 lbs/day of NO_x
- 550 lbs/day of CO
- 150 lbs/day of PM₁₀
- 55 lbs/day of PM_{2.5}
- 150 lbs/day of SO₂

Projects in the basin with construction-related emissions that exceed any of the emission thresholds are considered to be significant under SCAQMD guidelines.

5.1.3 Regional Significance Thresholds for Operational Emissions

The daily operational emissions significance thresholds for the basin are as follows:

- 55 pounds per day (lbs/day) of VOC
- 55 lbs/day of NO_x

- 550 lbs/day of CO
- 150 lbs/day of PM₁₀
- 55 lbs/day of PM_{2.5}
- 150 lbs/day of SO₂

Local Microscale Concentration Standards The significance of localized project impacts under CEQA depends on whether ambient CO levels in the vicinity of the project are above or below State and federal CO standards. If ambient levels are below the standards, a project is considered to have a significant impact if project emissions result in an exceedance of one or more of these standards. If ambient levels already exceed a State or federal standard, project emissions are considered significant if they increase 1-hour CO concentrations by 1.0 ppm or more or 8-hour CO concentrations by 0.45 ppm or more. The following are applicable local emission concentration standards for CO:

- California State 1-hour CO standard of 20.0 ppm
- California State 8-hour CO standard of 9.0 ppm

5.1.4 Thresholds for Localized Significance

Project-related construction air emissions may have the potential to exceed the State and Federal air quality standards in the project vicinity, even though these pollutant emissions may not be significant enough to create a regional impact to the South Coast Air Basin. In order to assess local air quality impacts the SCAQMD has developed Localized Significant Thresholds (LSTs) to assess the project-related air emissions in the project vicinity. The SCAQMD has also provided Final Localized Significant Threshold Methodology (LST Methodology), June 2003, which details the methodology to analyze local air emission impacts. The Localized Significant Threshold Methodology found that the primary emissions of concern are NO₂, CO, PM₁₀, and PM_{2.5}.

The emission thresholds were calculated based on the Perris Valley source receptor area (SRA 24) and a disturbance of 1 acre per day, to be conservative, at a distance of 25 meters (82 feet), for construction and 1 acre per day, to be conservative, for screening of localized operational emissions.

5.2 Greenhouse Gas Thresholds of Significance

5.2.1 CEQA Guidelines for Greenhouse Gas

CEQA Guidelines define a significant effect on the environment as “a substantial, or potentially substantial, adverse change in the environment.” To determine if a project would have a significant impact on greenhouse gases, the type, level, and impact of emissions generated by the project must be evaluated.

The following greenhouse gas significance thresholds are contained in Appendix G of the CEQA Guidelines, which were amendments adopted into the Guidelines on March 18, 2010, pursuant to SB 97. A significant impact would occur if the project would:

- (a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or

- (b) Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

However, despite this, currently neither the CEQA statutes, OPR guidelines, nor the draft proposed changes to the CEQA Guidelines prescribe thresholds of significance or a particular methodology for performing an impact analysis; as with most environmental topics, significance criteria are left to the judgment and discretion of the Lead Agency. As previously discussed (Section 2.2.4 of this report), SCAQMD has drafted interim thresholds. The screening threshold of 3,000 MTCO₂e per year for all land uses was used in this analysis.

5.3 Toxic Air Contaminants

The threshold for toxic air contaminants (TACs) has a maximum incremental cancer risk of 10 per million and a non-cancer (acute and chronic) hazard index of 1.0 or greater. An exceedance to these values would be considered a significant impact.

6.0 Air Quality Emissions Impact

6.1 Construction Air Quality Emissions Impact

The latest version of CalEEMod was used to estimate the onsite and offsite construction emissions. The emissions incorporate Rule 402 and 403. Rule 402 and 403 (fugitive dust) are not considered mitigation measures as the project by default is required to incorporate these rules during construction.

6.1.1 Regional Construction Emissions

The construction emissions for the project would not exceed the SCAQMD's daily emission thresholds at the regional level as demonstrated in Table 8, and therefore would be considered less than significant.

Table 8: Regional Significance - Construction Emissions (pounds/day)

Activity	Pollutant Emissions (pounds/day)					
	VOC	NOx	CO	SO ₂	PM10	PM2.5
Site Preparation						
On-Site ²	1.13	12.43	6.64	0.02	2.62	1.60
Off-Site ³	0.05	0.52	0.35	0.00	0.16	0.04
Total	1.18	12.94	6.99	0.02	2.79	1.65
Grading						
On-Site ²	0.93	10.18	5.55	0.01	2.34	1.37
Off-Site ³	0.03	0.02	0.25	0.00	0.09	0.02
Total	0.97	10.20	5.80	0.01	2.43	1.40
Building Construction						
On-Site ²	1.52	11.71	12.61	0.02	0.51	0.50
Off-Site ³	0.11	0.64	0.81	0.00	0.31	0.08
Total	1.63	12.35	13.43	0.03	0.82	0.58
Paving						
On-Site ²	0.81	6.24	8.80	0.01	0.31	0.28
Off-Site ³	0.05	0.03	0.41	0.00	0.15	0.04
Total	0.86	6.27	9.21	0.01	0.45	0.32
Architectural Coating						
On-Site ²	6.75	1.30	1.81	0.00	0.07	0.07
Off-Site ³	0.02	0.01	0.13	0.00	0.05	0.01
Total	6.77	1.31	1.94	0.00	0.12	0.08
Total of overlapping phases⁴	9.27	19.93	24.57	0.04	1.39	0.99
SCAQMD Thresholds	75	100	550	150	150	55
Exceeds Thresholds	No	No	No	No	No	No
Notes:						
¹ Source: CalEEMod Version 2016.3.2						
² On-site emissions from equipment operated on-site that is not operated on public roads.						
³ Off-site emissions from equipment operated on public roads.						
⁴ Construction, architectural coatings and paving phases may overlap.						

6.1.2 Localized Construction Emissions

The data provided in Table 9 shows that none of the analyzed criteria pollutants would exceed the local emissions thresholds at the nearest sensitive receptors. Therefore, a less than significant local air quality impact would occur from construction of the proposed project.

Table 9: Localized Significance – Construction

Phase	On-Site Pollutant Emissions (pounds/day) ¹			
	NO _x	CO	PM ₁₀	PM _{2.5}
Site Preparation	12.43	6.64	2.62	1.60
Grading	10.18	5.55	2.34	1.37
Building Construction	11.71	12.61	0.51	0.50
Paving	6.24	8.80	0.31	0.28
Architectural Coating	1.30	1.81	0.07	0.07
Total of overlapping phases	19.25	23.22	0.89	0.85
SCAQMD Threshold for 25 meters (82 feet) or less²	118	602	4	3
Exceeds Threshold?	No	No	No	No
Notes:				
¹ Source: Calculated from CalEEMod and SCAQMD's Mass Rate Look-up Tables for one acre in Perris Valley Source Receptor Area (SRA 24). Project will disturb a maximum of 1.5 acres per day (see Table 7).				
² The nearest sensitive receptors are located adjacent to the east of the project site, however according to LST methodology any receptor located closer than 25 meters should be based on the 25 meter threshold.				

6.1.3 Odors

Potential sources that may emit odors during construction activities include the application of materials such as asphalt pavement. The objectionable odors that may be produced during the construction process are of short-term in nature and the odor emissions are expected cease upon the drying or hardening of the odor producing materials. Diesel exhaust and VOCs would be emitted during construction of the project, which are objectionable to some; however, emissions would disperse rapidly from the project site and therefore should not reach an objectionable level at the nearest sensitive receptors. Due to the short-term nature and limited amounts of odor producing materials being utilized, no significant impact related to odors would occur during construction of the proposed project.

The SCAQMD recommends that odor impacts be addressed in a qualitative manner. Such an analysis shall determine whether the project would result in excessive nuisance odors, as defined under the California Code of Regulations and Section 41700 of the California Health and Safety Code, and thus would constitute a public nuisance related to air quality.

Potential sources that may emit odors during the on-going operations of the proposed project would include odor emissions from the service station operations. Due to the distance of the nearest receptors from the project site and through compliance with SCAQMD's Rule 402 no significant impact related to odors would occur during the on-going operations of the proposed project. Furthermore, Gasoline dispensing facilities are required to use Phase I/II EVR (enhanced vapor recovery) systems. Vehicle emissions are vapor recovery systems are addressed in Section 6.2.2.

6.1.4 Construction-Related Toxic Air Contaminant Impact

The greatest potential for toxic air contaminant emissions would be related to diesel particulate emissions associated with heavy equipment operations during construction of the proposed project. The Office of Environmental Health Hazard Assessment (OEHHA) has issued the Air Toxic Hot Spots Program Risk Assessment Guidelines and Guidance Manual for the Preparation of Health Risk Assessments, February 2015 to provide a description of the algorithms, recommended exposure variates, cancer and non-cancer health values, and the air modeling protocols needed to perform a health risk assessment (HRA) under the Air Toxics Hot Spots Information and Assessment Act of 1987. Hazard identification includes identifying all substances that are evaluated for cancer risk and/or non-cancer acute, 8-hour, and chronic health impacts. In addition, identifying any multi-pathway substances that present a cancer risk or chronic non-cancer hazard via non-inhalation routes of exposure.

Given the relatively limited number of heavy-duty construction equipment and construction schedule, the proposed project would not result in a long-term substantial source of toxic air containment emissions and corresponding individual cancer risk. Furthermore, construction-based particulate matter (PM) emissions (including diesel exhaust emissions) do not exceed any local or regional thresholds. Therefore, no significant short-term toxic air contaminant impacts would occur during construction of the proposed project.

6.2 Operational Air Quality Emissions Impact

6.2.1 Regional Operational Emissions

The operations-related criteria air quality impacts created by the proposed project have been analyzed through the use of CalEEMod model. The operating emissions were based on year 2024, which is the anticipated opening year for the project per the project-specific traffic impact analysis (TJW Engineering, Inc.). The summer and winter emissions created by the proposed project's long-term operations were calculated and the highest emissions from either summer or winter are summarized in Table 10.

Table 10: Regional Significance - Unmitigated Operational Emissions (lbs/day)

Activity	Pollutant Emissions (pounds/day) ¹					
	VOC	NOx	CO	SO2	PM10	PM2.5
Area Sources ²	0.15	0.00	0.01	0.00	0.00	0.00
Energy Usage ³	0.02	0.19	0.16	0.00	0.01	0.01
Mobile Sources ⁴	2.09	12.74	11.74	0.05	2.94	0.80
Total Emissions	2.25	12.93	11.91	0.05	2.96	0.82
SCAQMD Thresholds	55	55	550	150	150	55
Exceeds Threshold?	No	No	No	No	No	No

Notes:

¹ Source: CalEEMod Version 2016.3.2

² Area sources consist of emissions from consumer products, architectural coatings, and landscaping equipment.

³ Energy usage consists of emissions from on-site natural gas usage.

⁴ Mobile sources consist of emissions from vehicles and road dust.

Table 10 provides the project's unmitigated operational emissions. Table 10 shows that the project does not exceed the SCAQMD daily emission threshold and regional operational emissions are considered to be less than significant.

6.2.2 Localized Operational Emissions

Table 11 shows the calculated emissions for the proposed operational activities compared with appropriate LSTs. The LST analysis only includes on-site sources; however, the CalEEMod software outputs do not separate on-site and off-site emissions for mobile sources. For a worst-case scenario assessment, the emissions shown in Table 11 include all on-site project-related stationary sources and 10% of the project-related new mobile sources. This percentage is an estimate of the amount of project-related new vehicle traffic that will occur on-site.

Table 11: Localized Significance – Unmitigated Operational Emissions

On-Site Emission Source	On-Site Pollutant Emissions (pounds/day) ¹			
	NOx	CO	PM10	PM2.5
Area Sources ²	0.00	0.01	0.00	0.00
Energy Usage ³	0.19	0.16	0.01	0.01
On-Site Vehicle Emissions ⁴	1.27	1.17	0.29	0.08
Total Emissions	1.46	1.34	0.31	0.09
SCAQMD Threshold for 25 meters (82 feet)⁵	118	602	1	1
Exceeds Threshold?	No	No	No	No

Notes:
¹ Source: Calculated from CalEEMod and SCAQMD's Mass Rate Look-up Tables for one acre in Perris Valley Source Receptor Area (SRA 24).
² Area sources consist of emissions from consumer products, architectural coatings, and landscaping equipment.
³ Energy usage consists of emissions from generation of electricity and on-site natural gas usage.
⁴ On-site vehicular emissions based on 1/10 of the gross vehicular emissions and road dust.
⁵ The nearest sensitive receptors are located adjacent to the east of the project site, however according to LST methodology any receptor located closer than 25 meters should be based on the 25 meter threshold.

Table 11 indicates that the local operational emission would not exceed the LST thresholds at the nearest sensitive receptors, located adjacent to the project. Therefore, the project will not result in significant Localized Operational emissions.

6.3 CO Hot Spot Emissions

CO is the pollutant of major concern along roadways because the most notable source of CO is motor vehicles. For this reason, CO concentrations are usually indicative of the local air quality generated by a roadway network and are used as an indicator of potential local air quality impacts. Local air quality impacts can be assessed by comparing future without and with project CO levels to the State and Federal CO standards which were presented in above in Section 5.0.

To determine if the proposed project could cause emission levels in excess of the CO standards discussed above in Section 5.0, a sensitivity analysis is typically conducted to determine the potential for CO "hot spots" at a number of intersections in the general project vicinity. Because of reduced speeds and vehicle queuing, "hot spots" potentially can occur at high traffic volume intersections with a Level of Service E or worse.

Micro-scale air quality emissions have traditionally been analyzed in environmental documents where the air basin was a non-attainment area for CO. However, the SCAQMD has demonstrated in the CO attainment redesignation request to EPA that there are no “hot spots” anywhere in the air basin, even at intersections with much higher volumes, much worse congestion, and much higher background CO levels than anywhere in Riverside County. If the worst-case intersections in the air basin have no “hot spot” potential, any local impacts will be below thresholds.

The traffic study showed that the highest peak hour intersection volume is 576 trips per day for the existing plus ambient plus cumulative plus project (2024) PM scenario. The 1992 Federal Attainment Plan for Carbon Monoxide (1992 CO Plan) showed that an intersection which has a daily traffic volume of approximately 100,000 vehicles per day would not violate the CO standard. The volume of traffic at project buildout with cumulative projects would be well below 100,000 vehicles and below the necessary volume to even get close to causing a violation of the CO standard. Therefore no CO “hot spot” modeling was performed and no significant long-term air quality impact is anticipated to local air quality with the on-going use of the proposed project.

6.4 Cumulative Regional Air Quality Impacts

Cumulative projects include local development as well as general growth within the project area. However, as with most development, the greatest source of emissions is from mobile sources, which travel well out of the local area. Therefore, from an air quality standpoint, the cumulative analysis would extend beyond any local projects and when wind patterns are considered, would cover an even larger area. Accordingly, the cumulative analysis for the project’s air quality must be generic by nature.

The project area is out of attainment for both ozone and PM10 particulate matter. Construction and operation of cumulative projects will further degrade the local air quality, as well as the air quality of the South Coast Air Basin. The greatest cumulative impact on the quality of regional air cell will be the incremental addition of pollutants mainly from increased traffic from residential, commercial, and industrial development and the use of heavy equipment and trucks associated with the construction of these projects. Air quality will be temporarily degraded during construction activities that occur separately or simultaneously. However, in accordance with the SCAQMD methodology, projects that do not exceed the SCAQMD criteria or can be mitigated to less than criteria levels are not significant and do not add to the overall cumulative impact. The project does not exceed any of the thresholds of significance and therefore is considered less than significant.

6.5 Air Quality Compliance

The California Environmental Quality Act (CEQA) requires a discussion of any inconsistencies between a proposed project and applicable General Plans and Regional Plans (CEQA Guidelines Section 15125). The regional plan that applies to the proposed project includes the SCAQMD Air Quality Management Plan (AQMP). Therefore, this section discusses any potential inconsistencies of the proposed project with the AQMP.

The purpose of this discussion is to set forth the issues regarding consistency with the assumptions and objectives of the AQMP and discuss whether the proposed project would interfere with the region’s

ability to comply with Federal and State air quality standards. If the decision-makers determine that the proposed project is inconsistent, the lead agency may consider project modifications or inclusion of mitigation to eliminate the inconsistency.

The SCAQMD CEQA Handbook states that "New or amended General Plan Elements (including land use zoning and density amendments), Specific Plans, and significant projects must be analyzed for consistency with the AQMP." Strict consistency with all aspects of the plan is usually not required. A proposed project should be considered to be consistent with the AQMP if it furthers one or more policies and does not obstruct other policies. The SCAQMD CEQA Handbook identifies two key indicators of consistency:

- (1) Whether the project will result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP.
- (2) Whether the project will exceed the assumptions in the AQMP in 2016 or increments based on the year of project buildout and phase.

Both of these criteria are evaluated in the following sections.

A. Criterion 1 - Increase in the Frequency or Severity of Violations

Based on the air quality modeling analysis contained in this Air Analysis, neither short-term construction impacts, nor long-term operations will result in significant impacts based on the SCAQMD regional and local thresholds of significance.

Therefore, the proposed project is not projected to contribute to the exceedance of any air pollutant concentration standards and is found to be consistent with the AQMP for the first criterion.

B. Criterion 2 - Exceed Assumptions in the AQMP?

Consistency with the AQMP assumptions is determined by performing an analysis of the proposed project with the assumptions in the AQMP. The emphasis of this criterion is to ensure that the analyses conducted for the proposed project are based on the same forecasts as the AQMP. The 2016-2040 Regional Transportation/Sustainable Communities Strategy, prepared by SCAG, 2016, includes chapters on: the challenges in a changing region, creating a plan for our future, and the road to greater mobility and sustainable growth. These chapters currently respond directly to federal and state requirements placed on SCAG. Local governments are required to use these as the basis of their plans for purposes of consistency with applicable regional plans under CEQA. For this project, the City of Moreno Valley General Plan Land Use Map defines the assumptions that are represented in the AQMP.

The proposed project is currently zoned Village Commercial (VC) and classified as Commercial Land Use according to the City of Moreno Valley General Plan Land Use Map and the proposed project is consistent with the current land use designations and zoning. Therefore, it is not anticipated that the project would exceed the AQMP assumptions for the project site, and is found to be consistent with the AQMP for the second criterion.

Based on the above, the proposed project will not result in an inconsistency with the SCAQMD AQMP. Therefore, a less than significant impact will occur.

7.0 Greenhouse Gas Impact Analysis

7.1 Construction Greenhouse Gas Emissions Impact

The greenhouse gas emissions from project construction equipment and worker vehicles are shown in Table 12. The emissions are from all phases of construction. The total construction emissions amortized over a period of 30 years are estimated at 7.8 metric tons of CO₂e per year. Annual CalEEMod output calculations are provided in Appendix B.

Table 12: Construction Greenhouse Gas Emissions

Activity	Emissions (MTCO ₂ e) ¹		
	Onsite	Offsite	Total
Site Preparation	1.5	0.3	1.9
Grading	2.5	0.1	2.6
Building Construction	182.4	39.4	221.7
Paving	5.9	0.5	6.5
Coating	1.2	0.1	1.3
Total	193.5	40.5	234.0
Averaged over 30 years²	6	1	7.80

Notes:
¹ MTCO₂e=metric tons of carbon dioxide equivalents (includes carbon dioxide, methane and nitrous oxide).
² The emissions are averaged over 30 years because the average is added to the operational emissions, pursuant to SCAQMD.
* CalEEMod output (Appendix B)

7.2 Operational Greenhouse Gas Emissions Impact

Operational emissions occur over the life of the project. The operational emissions for the project are 944.37 metric tons of CO₂e per year as shown in Table 13. These emissions do not exceed the SCAQMD screening threshold for all land uses of 3,000 metric tons of CO₂e per year. Therefore, the project's GHG emissions are considered to be less than significant.

<Table 13 next page>

Table 13: Opening Year Unmitigated Project-Related Greenhouse Gas Emissions

Category	Greenhouse Gas Emissions (Metric Tons/Year) ¹					
	Bio-CO2	NonBio-CO ₂	CO ₂	CH ₄	N ₂ O	CO ₂ e
Area Sources ²	0.00	0.00	0.00	0.00	0.00	0.00
Energy Usage ³	0.00	90.32	90.32	0.00	0.00	90.73
Mobile Sources ⁴	0.00	822.09	822.09	0.06	0.00	823.67
Solid Waste ⁵	6.47	0.00	6.47	0.38	0.00	16.02
Water ⁶	0.31	4.78	5.10	0.03	0.00	6.15
Construction ⁷	0.00	7.77	7.77	0.00	0.00	7.80
Total Emissions	6.78	924.97	931.75	0.48	0.00	944.37
SCAQMD Draft Screening Threshold						3,000
Exceeds Threshold?						No
Notes:						
¹ Source: CalEEMod Version 2016.3.2						
² Area sources consist of GHG emissions from consumer products, architectural coatings, and landscape equipment.						
³ Energy usage consist of GHG emissions from electricity and natural gas usage.						
⁴ Mobile sources consist of GHG emissions from vehicles.						
⁵ Solid waste includes the CO ₂ and CH ₄ emissions created from the solid waste placed in landfills.						
⁶ Water includes GHG emissions from electricity used for transport of water and processing of wastewater.						
⁷ Construction GHG emissions based on a 30 year amortization rate.						

7.3 Greenhouse Gas Plan Consistency

The proposed project would have the potential to conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases. The applicable plans for the proposed project are the City of Moreno Valley Greenhouse Gas Analysis (adopted February 2012) and the City of Moreno Valley Energy Efficiency and Climate Action Strategy (adopted October 2012). The City of Moreno Valley has adopted these plans in order to assist the City in conforming to the GHG emissions reductions as mandated under AB 32.

As stated previously, the SCAQMD's tier 3 thresholds used Executive Order S-3-05 goal as the basis for deriving the screening level. The California Governor issued Executive Order S-3-05, GHG Emission, in June 2005, which established the following reduction targets:

- 2010: Reduce greenhouse gas emissions to 2000 levels
- 2020: Reduce greenhouse gas emissions to 1990 levels
- 2050: Reduce greenhouse gas emissions to 80 percent below 1990 levels.

In 2006, the California State Legislature adopted AB 32, the California Global Warming Solutions Act of 2006. AB 32 requires CARB, to adopt rules and regulations that would achieve GHG emissions equivalent to statewide levels in 1990 by 2020 through an enforceable statewide emission cap which was phased in starting in 2012.

Projects whose emissions meet the threshold for compliance with Executive Order S-3-05, would also comply with the goals of AB 32 and the City of Moreno Valley Energy Efficiency and Climate Action Strategy. Additionally, if a project meets the current interim emissions targets/thresholds established by SCAQMD (as described in Section V, Air Quality Standards), the project would also be on track to

meet the reduction target of 40 percent below 1990 levels by 2030 mandated by SB-32. Furthermore, all of the post 2020 reductions in GHG emissions are addressed via regulatory requirements at the State level and the project will be required to comply with these regulations as they come into effect.

At a level of 944.37 MTCO₂e per year, the GHG emissions of the proposed project do not exceed SCAQMD thresholds and are in compliance with the reduction goals of the City of Moreno Valley Energy Efficiency and Climate Action Strategy, AB-32 and SB-32. Therefore, the proposed project would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases and impacts are considered to be less than significant.

8.0 Health Risk Assessment

CARB (and CAPCOA) recommend a 50-foot separation between gas stations and sensitive receptors; therefore, the approximately 150-foot separation from the single-family residential dwelling units to the east from the underground storage tanks and approximately 170-foot separation from the single-family residential dwelling units to the north from the fueling pump canopy should be more than adequate (these are the closest sensitive receptors from either the tanks or fueling pumps). Furthermore, the attached (Appendix C) SCAQMD gasoline station HRA screening tables show that the MICR at residential receptors 25 meters (the tanks and pumps are located further away @ approximately 46 meters at the nearest point) from the fuel source would not even exceed 3.494 in a million (per 1,000,000 gallons of through put); which is a reasonable assumption given the size of the project and number of pumps). The proposed project is estimated to have approximately 0.94MM gallons of through put per year which equates to an approximate 1.58 in a million MICR, at a distance of approximately 46 meters. The risk is below SCAQMD's 10 in a million threshold and therefore no additional mitigation is required.

Furthermore, the project includes the construction and operation of a gas station with 8 fuel pumps. The fuel pump-portion of the project will be permitted by SCAQMD and fuel-related emissions will be regulated by the SCAQMD Rule 461 and be required to obtain a Permit To Operate. Gasoline dispensing facilities are required to use Phase I/II EVR (enhanced vapor recovery) systems. Phase II EVR have an average efficiency of 95.1 percent and Phase I EVR have an average efficiency of 98 percent. Therefore, the potential for fugitive VOC or TAC emissions from the gasoline pumps is negligible. As such, the project will not be a source of toxic air contaminants or fugitive VOC emissions and sensitive receptors (located as close as approximately 170 feet from the proposed gasoline fueling pumps) would not be exposed to toxic sources of air pollution. The separating distance between the gas station and closest sensitive receptors is greater than the SCAQMD's minimum 50-foot separation.

According to the ARB's: *Revised Emission Factors for Gasoline Marketing Operations at California Gasoline Dispensing Facilities (12/23/2013)*¹, both Phase I and Phase II EVR systems have a minimum 95.1% efficiency at capturing emissions. Emission inventory is based upon two (2) factors: 8.4 lbs of TOG per thousand gallons dispensed (lbs/kgal) and 0.74 lbs/kgal for Gasoline Dispensing Facilities with Phase II pre-EVR vapor recovery.

These factors are based upon pre-EVR vapor recovery systems. Assuming a 95% vapor recovery rate, the majority of the emissions would be captured and the additional VOCs that would potentially escape these mandatory recovery systems is anticipated to be relatively small. Per Table 10, the project's unmitigated operational VOC emissions are 2.25 lbs/day. At 2,611 gallons per day the calculated uncontrolled ORVR VOC would be 22 lbs/day. Even if an additional 22 lbs/day (the uncontrolled [no ORVR or phase II] vehicle fueling emission factor for each 1,000 gallons pumped)

¹ <https://www.arb.ca.gov/vapor/gdf-emisfactor/gdf%20umbrella%20document%20-%202020%20nov%202013.pdf>

were added to the project's operational VOC emissions), the total emissions of 24.25 lbs/day would not exceed the SCAQMD's operational threshold of significance of 55 lbs per day for VOC. However, the vehicle fueling emissions factor with ORVR and Phase II EVR in place is 0.021 lbs per thousand gallons which equates to 0.055 lbs/day. The emissions amount is below the VOC threshold of significance and the impact is less than significant. Furthermore, both ORVR and Phase II EVRs are required per regulation in California.

To exceed the VOC daily emissions threshold the gas pumps at the project site would have to pump over a million gallons of fuel per day to exceed the daily VOC threshold.

9.0 References

The following references were used in the preparing this analysis.

California Air Pollution Control Officers Association

2009 Health Risk Assessments for Proposed Land Use Projects

California Air Resources Board

2008 Resolution 08-43

2008 Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the California Environmental Quality Act

2008 ARB Recommended Interim Risk Management Policy for Inhalation-Based Residential Cancer Risk – Frequently Asked Questions

2008 Climate Change Scoping Plan, a framework for change.

2011 Supplement to the AB 32 Scoping Plan Functional Equivalent Document

2013 Revised Emission Factors for Gasoline Marketing Operations at California Gasoline Dispensing Facilities

2014 First Update to the Climate Change Scoping Plan, Building on the Framework Pursuant to AB32, the California Global Warming Solutions Act of 2006. May.

2018 Historical Air Quality, Top 4 Summary

City of Moreno Valley

2006 City of Moreno Valley General Plan. July 11.

2012 City of Moreno Valley Energy Efficiency and Climate Action Strategy. October.

Governor's Office of Planning and Research

2008 CEQA and Climate: Addressing Climate Change Through California Environmental Quality Act (CEQA) Review

2009 CEQA Guideline Sections to be Added or Amended

Office of Environmental Health Hazard Assessment

2015 Air Toxics Hot Spots Program Risk Assessment Guidelines

South Coast Air Quality Management District

- 1993 CEQA Air Quality Handbook
- 2005 Rule 403 Fugitive Dust
- 2007 2007 Air Quality Management Plan
- 2008 Final Localized Significance Threshold Methodology, Revised
- 2011 Appendix A Calculation Details for CalEEMod
- 2012 Final 2012 Air Quality Management Plan
- 2016 Final 2016 Air Quality Management Plan
- TJW Engineering, Inc.**
- 2019 Redlands Alessandro Commercial Plaza Traffic Impact Analysis, City of Moreno Valley, CA. August 30.

Appendix A:

CalEEMod Daily Emission Output

04701806 Farm Market Improvement Development - Riverside-South Coast County, Summer

04701806 Farm Market Improvement Development
Riverside-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Regional Shopping Center	2.00	1000sqft	0.05	2,000.00	0
High Turnover (Sit Down Restaurant)	2.50	1000sqft	0.06	2,500.00	0
Convenience Market With Gas Pumps	8.00	Pump	0.03	1,129.40	0
Parking Lot	37.00	Space	0.63	27,443.00	0
Other Non-Asphalt Surfaces	0.48	Acre	0.48	20,908.80	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.4	Precipitation Freq (Days)	28
Climate Zone	10			Operational Year	2024
Utility Company	Southern California Edison				
CO2 Intensity (lb/MW hr)	702.44	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET

04701806 Farm Market Improvement Development - Riverside-South Coast County, Summer

Project Characteristics -

Land Use - ~1.7 ac site - ~0.45 ac existing to remain = ~1.25 ac to be developed w/ 2TSF retail, 2.5TSF restaurant, 8 fuel pump gas station, ~50% (~0.63 ac) of site paving (includes 37 new parking spaces), & remainder landscaping (~0.48 ac).

Construction Phase - Per TIA opening year is 2024, used CalEEMod default timing. No demo, only site prep to remove some of the existing parking/landscaping areas.

Off-road Equipment -

Grading - Site anticipated to be balanced. Site prep of ~0.3 acres (~25% of site) to remove some of the existing landscaping/paving.

Trips and VMT - ~8 hauling trips needed during site prep to remove ~0.3 acres of existing paving/landscaping.

Vehicle Trips - Per TIA, 37.75 trips/TSF/day for retail, 112.18 trips/TSF/day for restaurant, & 172.01 trips/FP/day for gas station.

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation - Site is ~4.54 miles southeast of downtown portion of Moreno Valley.

Water Mitigation - Per CalGreen Standards, 20% indoor water reduction.

Waste Mitigation - AB 341 requires each jurisdiction in CA divert at least 75% of their waste away from landfills by 2020.

04701806 Farm Market Improvement Development - Riverside-South Coast County, Summer

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	PhaseEndDate	11/13/2023	1/1/2024
tblConstructionPhase	PhaseEndDate	10/16/2023	12/4/2023
tblConstructionPhase	PhaseEndDate	1/9/2023	2/27/2023
tblConstructionPhase	PhaseEndDate	10/30/2023	12/18/2023
tblConstructionPhase	PhaseEndDate	1/3/2023	2/21/2023
tblConstructionPhase	PhaseStartDate	10/31/2023	12/19/2023
tblConstructionPhase	PhaseStartDate	1/10/2023	2/28/2023
tblConstructionPhase	PhaseStartDate	1/4/2023	2/22/2023
tblConstructionPhase	PhaseStartDate	10/17/2023	12/5/2023
tblConstructionPhase	PhaseStartDate	1/1/2023	2/18/2023
tblGrading	AcresOfGrading	1.00	0.30
tblLandUse	LandUseSquareFeet	14,800.00	27,443.00
tblLandUse	LotAcreage	0.33	0.63
tblTripsAndVMT	HaulingTripNumber	0.00	8.00
tblVehicleTrips	ST_TR	204.47	172.01
tblVehicleTrips	ST_TR	158.37	112.18
tblVehicleTrips	ST_TR	49.97	37.75
tblVehicleTrips	SU_TR	166.88	172.01
tblVehicleTrips	SU_TR	131.84	112.18
tblVehicleTrips	SU_TR	25.24	37.75
tblVehicleTrips	WD_TR	542.60	172.01
tblVehicleTrips	WD_TR	127.15	112.18
tblVehicleTrips	WD_TR	42.70	37.75

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET

2.0 Emissions Summary

04701806 Farm Market Improvement Development - Riverside-South Coast County, Summer

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	6.7715	12.9419	13.4253	0.0265	5.5878	0.5165	6.0966	2.9565	0.4987	3.4247	0.0000	2,456.2447	2,456.2447	0.5549	0.0000	2,465.1750
2024	6.7596	1.2268	1.9282	3.3500e-003	0.0447	0.0612	0.1059	0.0119	0.0611	0.0730	0.0000	319.5133	319.5133	0.0166	0.0000	319.9282
Maximum	6.7715	12.9419	13.4253	0.0265	5.5878	0.5165	6.0966	2.9565	0.4987	3.4247	0.0000	2,456.2447	2,456.2447	0.5549	0.0000	2,465.1750

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	6.7715	12.9419	13.4253	0.0265	2.2765	0.5165	2.7853	1.1792	0.4987	1.6474	0.0000	2,456.2447	2,456.2447	0.5549	0.0000	2,465.1750
2024	6.7596	1.2268	1.9282	3.3500e-003	0.0447	0.0612	0.1059	0.0119	0.0611	0.0730	0.0000	319.5133	319.5133	0.0166	0.0000	319.9282
Maximum	6.7715	12.9419	13.4253	0.0265	2.2765	0.5165	2.7853	1.1792	0.4987	1.6474	0.0000	2,456.2447	2,456.2447	0.5549	0.0000	2,465.1750

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	58.79	0.00	53.39	59.88	0.00	50.81	0.00	0.00	0.00	0.00	0.00	0.00

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET

04701806 Farm Market Improvement Development - Riverside-South Coast County, Summer

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.1470	5.0000e-005	5.0900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0109	0.0109	3.0000e-005		0.0117
Energy	0.0204	0.1855	0.1558	1.1100e-003		0.0141	0.0141		0.0141	0.0141		222.5777	222.5777	4.2700e-003	4.0800e-003	223.9004
Mobile	2.0870	12.7409	11.7443	0.0511	2.9141	0.0269	2.9410	0.7795	0.0251	0.8045		5,259.6750	5,259.6750	0.3684		5,268.8838
Total	2.2545	12.9264	11.9052	0.0522	2.9141	0.0411	2.9551	0.7795	0.0392	0.8187		5,482.2637	5,482.2637	0.3727	4.0800e-003	5,492.7958

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.1470	5.0000e-005	5.0900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0109	0.0109	3.0000e-005		0.0117
Energy	0.0204	0.1855	0.1558	1.1100e-003		0.0141	0.0141		0.0141	0.0141		222.5777	222.5777	4.2700e-003	4.0800e-003	223.9004
Mobile	2.0609	12.5803	10.9120	0.0471	2.5517	0.0247	2.5765	0.6826	0.0230	0.7056		4,849.3035	4,849.3035	0.3579		4,858.2503
Total	2.2283	12.7658	11.0729	0.0482	2.5517	0.0389	2.5906	0.6826	0.0371	0.7197		5,071.8922	5,071.8922	0.3622	4.0800e-003	5,082.1623

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET

04701806 Farm Market Improvement Development - Riverside-South Coast County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	1.16	1.24	6.99	7.72	12.43	5.38	12.34	12.43	5.26	12.09	0.00	7.49	7.49	2.81	0.00	7.48

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	2/18/2023	2/21/2023	5	2	
2	Grading	Grading	2/22/2023	2/27/2023	5	4	
3	Building Construction	Building Construction	2/28/2023	12/4/2023	5	200	
4	Paving	Paving	12/5/2023	12/18/2023	5	10	
5	Architectural Coating	Architectural Coating	12/19/2023	1/1/2024	5	10	

Acres of Grading (Site Preparation Phase): 0.3

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 1.11

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 8,444; Non-Residential Outdoor: 2,815; Striped Parking Area: 2,901 (Architectural Coating – sqft)

OffRoad Equipment

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET

04701806 Farm Market Improvement Development - Riverside-South Coast County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Site Preparation	Graders	1	8.00	187	0.41
Paving	Pavers	1	6.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	6.00	187	0.41
Paving	Paving Equipment	1	8.00	132	0.36
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Building Construction	Welders	3	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	3	8.00	0.00	8.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	22.00	9.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	4.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET

04701806 Farm Market Improvement Development - Riverside-South Coast County, Summer

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.4284	0.0000	5.4284	2.9136	0.0000	2.9136			0.0000			0.0000
Off-Road	1.1339	12.4250	6.6420	0.0172		0.5074	0.5074		0.4668	0.4668		1,666.057 3	1,666.057 3	0.5388		1,679.528 2
Total	1.1339	12.4250	6.6420	0.0172	5.4284	0.5074	5.9358	2.9136	0.4668	3.3804		1,666.057 3	1,666.057 3	0.5388		1,679.528 2

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET

04701806 Farm Market Improvement Development - Riverside-South Coast County, Summer

3.2 Site Preparation - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0127	0.4994	0.0978	2.8800e-003	0.0700	9.5000e-004	0.0709	0.0192	9.1000e-004	0.0201		305.6092	305.6092	0.0144		305.9683
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0333	0.0175	0.2518	7.9000e-004	0.0894	5.0000e-004	0.0899	0.0237	4.6000e-004	0.0242		78.9489	78.9489	1.6400e-003		78.9898
Total	0.0460	0.5169	0.3496	3.6700e-003	0.1594	1.4500e-003	0.1608	0.0429	1.3700e-003	0.0443		384.5581	384.5581	0.0160		384.9582

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.1171	0.0000	2.1171	1.1363	0.0000	1.1363			0.0000			0.0000
Off-Road	1.1339	12.4250	6.6420	0.0172		0.5074	0.5074		0.4668	0.4668	0.0000	1,666.0573	1,666.0573	0.5388		1,679.5282
Total	1.1339	12.4250	6.6420	0.0172	2.1171	0.5074	2.6245	1.1363	0.4668	1.6031	0.0000	1,666.0573	1,666.0573	0.5388		1,679.5282

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET

04701806 Farm Market Improvement Development - Riverside-South Coast County, Summer

3.2 Site Preparation - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0127	0.4994	0.0978	2.8800e-003	0.0700	9.5000e-004	0.0709	0.0192	9.1000e-004	0.0201		305.6092	305.6092	0.0144		305.9683
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0333	0.0175	0.2518	7.9000e-004	0.0894	5.0000e-004	0.0899	0.0237	4.6000e-004	0.0242		78.9489	78.9489	1.6400e-003		78.9898
Total	0.0460	0.5169	0.3496	3.6700e-003	0.1594	1.4500e-003	0.1608	0.0429	1.3700e-003	0.0443		384.5581	384.5581	0.0160		384.9582

3.3 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.9143	0.0000	4.9143	2.5256	0.0000	2.5256			0.0000			0.0000
Off-Road	0.9335	10.1789	5.5516	0.0141		0.4201	0.4201		0.3865	0.3865		1,364.7713	1,364.7713	0.4414		1,375.8062
Total	0.9335	10.1789	5.5516	0.0141	4.9143	0.4201	5.3343	2.5256	0.3865	2.9121		1,364.7713	1,364.7713	0.4414		1,375.8062

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04701806 Farm Market Improvement Development - Riverside-South Coast County, Summer

3.3 Grading - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0333	0.0175	0.2518	7.9000e-004	0.0894	5.0000e-004	0.0899	0.0237	4.6000e-004	0.0242		78.9489	78.9489	1.6400e-003		78.9898
Total	0.0333	0.0175	0.2518	7.9000e-004	0.0894	5.0000e-004	0.0899	0.0237	4.6000e-004	0.0242		78.9489	78.9489	1.6400e-003		78.9898

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.9166	0.0000	1.9166	0.9850	0.0000	0.9850			0.0000			0.0000
Off-Road	0.9335	10.1789	5.5516	0.0141		0.4201	0.4201		0.3865	0.3865	0.0000	1,364.7713	1,364.7713	0.4414		1,375.8062
Total	0.9335	10.1789	5.5516	0.0141	1.9166	0.4201	2.3367	0.9850	0.3865	1.3715	0.0000	1,364.7713	1,364.7713	0.4414		1,375.8062

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04701806 Farm Market Improvement Development - Riverside-South Coast County, Summer

3.3 Grading - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0333	0.0175	0.2518	7.9000e-004	0.0894	5.0000e-004	0.0899	0.0237	4.6000e-004	0.0242		78.9489	78.9489	1.6400e-003		78.9898
Total	0.0333	0.0175	0.2518	7.9000e-004	0.0894	5.0000e-004	0.0899	0.0237	4.6000e-004	0.0242		78.9489	78.9489	1.6400e-003		78.9898

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5233	11.7104	12.6111	0.0221		0.5145	0.5145		0.4968	0.4968		2,001.7877	2,001.7877	0.3399		2,010.2858
Total	1.5233	11.7104	12.6111	0.0221		0.5145	0.5145		0.4968	0.4968		2,001.7877	2,001.7877	0.3399		2,010.2858

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3.4 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0150	0.5909	0.1218	2.2500e-003	0.0576	5.9000e-004	0.0582	0.0166	5.7000e-004	0.0172		237.3476	237.3476	0.0128		237.6672
Worker	0.0915	0.0482	0.6924	2.1800e-003	0.2459	1.3800e-003	0.2473	0.0652	1.2700e-003	0.0665		217.1095	217.1095	4.5000e-003		217.2221
Total	0.1065	0.6391	0.8142	4.4300e-003	0.3035	1.9700e-003	0.3055	0.0818	1.8400e-003	0.0836		454.4571	454.4571	0.0173		454.8893

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5233	11.7104	12.6111	0.0221		0.5145	0.5145		0.4968	0.4968	0.0000	2,001.7877	2,001.7877	0.3399		2,010.2858
Total	1.5233	11.7104	12.6111	0.0221		0.5145	0.5145		0.4968	0.4968	0.0000	2,001.7877	2,001.7877	0.3399		2,010.2858

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3.4 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0150	0.5909	0.1218	2.2500e-003	0.0576	5.9000e-004	0.0582	0.0166	5.7000e-004	0.0172		237.3476	237.3476	0.0128		237.6672
Worker	0.0915	0.0482	0.6924	2.1800e-003	0.2459	1.3800e-003	0.2473	0.0652	1.2700e-003	0.0665		217.1095	217.1095	4.5000e-003		217.2221
Total	0.1065	0.6391	0.8142	4.4300e-003	0.3035	1.9700e-003	0.3055	0.0818	1.8400e-003	0.0836		454.4571	454.4571	0.0173		454.8893

3.5 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6446	6.2357	8.8024	0.0136		0.3084	0.3084		0.2846	0.2846		1,297.6880	1,297.6880	0.4114		1,307.9725
Paving	0.1651					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.8097	6.2357	8.8024	0.0136		0.3084	0.3084		0.2846	0.2846		1,297.6880	1,297.6880	0.4114		1,307.9725

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04701806 Farm Market Improvement Development - Riverside-South Coast County, Summer

3.5 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0541	0.0285	0.4091	1.2900e-003	0.1453	8.1000e-004	0.1461	0.0385	7.5000e-004	0.0393		128.2920	128.2920	2.6600e-003		128.3585
Total	0.0541	0.0285	0.4091	1.2900e-003	0.1453	8.1000e-004	0.1461	0.0385	7.5000e-004	0.0393		128.2920	128.2920	2.6600e-003		128.3585

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6446	6.2357	8.8024	0.0136		0.3084	0.3084		0.2846	0.2846	0.0000	1,297.6880	1,297.6880	0.4114		1,307.9725
Paving	0.1651					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.8097	6.2357	8.8024	0.0136		0.3084	0.3084		0.2846	0.2846	0.0000	1,297.6880	1,297.6880	0.4114		1,307.9725

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04701806 Farm Market Improvement Development - Riverside-South Coast County, Summer

3.5 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0541	0.0285	0.4091	1.2900e-003	0.1453	8.1000e-004	0.1461	0.0385	7.5000e-004	0.0393		128.2920	128.2920	2.6600e-003		128.3585
Total	0.0541	0.0285	0.4091	1.2900e-003	0.1453	8.1000e-004	0.1461	0.0385	7.5000e-004	0.0393		128.2920	128.2920	2.6600e-003		128.3585

3.6 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	6.5632					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	6.7548	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690

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04701806 Farm Market Improvement Development - Riverside-South Coast County, Summer

3.6 Architectural Coating - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0166	8.7700e-003	0.1259	4.0000e-004	0.0447	2.5000e-004	0.0450	0.0119	2.3000e-004	0.0121		39.4745	39.4745	8.2000e-004		39.4949
Total	0.0166	8.7700e-003	0.1259	4.0000e-004	0.0447	2.5000e-004	0.0450	0.0119	2.3000e-004	0.0121		39.4745	39.4745	8.2000e-004		39.4949

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	6.5632					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	6.7548	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690

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3.6 Architectural Coating - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0166	8.7700e-003	0.1259	4.0000e-004	0.0447	2.5000e-004	0.0450	0.0119	2.3000e-004	0.0121		39.4745	39.4745	8.2000e-004		39.4949
Total	0.0166	8.7700e-003	0.1259	4.0000e-004	0.0447	2.5000e-004	0.0450	0.0119	2.3000e-004	0.0121		39.4745	39.4745	8.2000e-004		39.4949

3.6 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	6.5632					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	6.7439	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443

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3.6 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0157	7.9500e-003	0.1180	3.8000e-004	0.0447	2.5000e-004	0.0450	0.0119	2.3000e-004	0.0121		38.0653	38.0653	7.5000e-004		38.0839
Total	0.0157	7.9500e-003	0.1180	3.8000e-004	0.0447	2.5000e-004	0.0450	0.0119	2.3000e-004	0.0121		38.0653	38.0653	7.5000e-004		38.0839

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	6.5632					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
Total	6.7439	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443

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3.6 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0157	7.9500e-003	0.1180	3.8000e-004	0.0447	2.5000e-004	0.0450	0.0119	2.3000e-004	0.0121		38.0653	38.0653	7.5000e-004		38.0839
Total	0.0157	7.9500e-003	0.1180	3.8000e-004	0.0447	2.5000e-004	0.0450	0.0119	2.3000e-004	0.0121		38.0653	38.0653	7.5000e-004		38.0839

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Destination Accessibility

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.0609	12.5803	10.9120	0.0471	2.5517	0.0247	2.5765	0.6826	0.0230	0.7056		4,849.3035	4,849.3035	0.3579		4,858.2503
Unmitigated	2.0870	12.7409	11.7443	0.0511	2.9141	0.0269	2.9410	0.7795	0.0251	0.8045		5,259.6750	5,259.6750	0.3684		5,268.8838

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Convenience Market With Gas Pumps	1,376.08	1,376.08	1376.08	821,347	719,226
High Turnover (Sit Down Restaurant)	280.45	280.45	280.45	382,206	334,685
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Regional Shopping Center	75.50	75.50	75.50	163,295	142,992
Total	1,732.03	1,732.03	1,732.03	1,366,848	1,196,903

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Convenience Market With Gas	16.60	8.40	6.90	0.80	80.20	19.00	14	21	65
High Turnover (Sit Down)	16.60	8.40	6.90	8.50	72.50	19.00	37	20	43
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11

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4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Convenience Market With Gas Pumps	0.551648	0.035769	0.187848	0.110184	0.013450	0.004660	0.017552	0.070120	0.001413	0.001134	0.004476	0.000905	0.000840
High Turnover (Sit Down Restaurant)	0.551648	0.035769	0.187848	0.110184	0.013450	0.004660	0.017552	0.070120	0.001413	0.001134	0.004476	0.000905	0.000840
Other Non-Asphalt Surfaces	0.551648	0.035769	0.187848	0.110184	0.013450	0.004660	0.017552	0.070120	0.001413	0.001134	0.004476	0.000905	0.000840
Parking Lot	0.551648	0.035769	0.187848	0.110184	0.013450	0.004660	0.017552	0.070120	0.001413	0.001134	0.004476	0.000905	0.000840
Regional Shopping Center	0.551648	0.035769	0.187848	0.110184	0.013450	0.004660	0.017552	0.070120	0.001413	0.001134	0.004476	0.000905	0.000840

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0204	0.1855	0.1558	1.1100e-003		0.0141	0.0141		0.0141	0.0141		222.5777	222.5777	4.2700e-003	4.0800e-003	223.9004
NaturalGas Unmitigated	0.0204	0.1855	0.1558	1.1100e-003		0.0141	0.0141		0.0141	0.0141		222.5777	222.5777	4.2700e-003	4.0800e-003	223.9004

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5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Convenience Market With Gas Pumps	6.86923	7.0000e-005	6.7000e-004	5.7000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.8081	0.8081	2.0000e-005	1.0000e-005	0.8130
High Turnover (Sit Down Restaurant)	1872.88	0.0202	0.1836	0.1542	1.1000e-003		0.0140	0.0140		0.0140	0.0140		220.3384	220.3384	4.2200e-003	4.0400e-003	221.6478
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	12.1644	1.3000e-004	1.1900e-003	1.0000e-003	1.0000e-005		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005		1.4311	1.4311	3.0000e-005	3.0000e-005	1.4396
Total		0.0204	0.1855	0.1558	1.1100e-003		0.0141	0.0141		0.0141	0.0141		222.5777	222.5777	4.2700e-003	4.0800e-003	223.9004

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5.2 Energy by Land Use - Natural Gas

Mitigated

	Natural Gas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Convenience Market With Gas Pumps	0.00686923	7.0000e-005	6.7000e-004	5.7000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.8081	0.8081	2.0000e-005	1.0000e-005	0.8130
High Turnover (Sit Down Restaurant)	1.87288	0.0202	0.1836	0.1542	1.1000e-003		0.0140	0.0140		0.0140	0.0140		220.3384	220.3384	4.2200e-003	4.0400e-003	221.6478
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0.0121644	1.3000e-004	1.1900e-003	1.0000e-003	1.0000e-005		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005		1.4311	1.4311	3.0000e-005	3.0000e-005	1.4396
Total		0.0204	0.1855	0.1558	1.1100e-003		0.0141	0.0141		0.0141	0.0141		222.5777	222.5777	4.2700e-003	4.0800e-003	223.9004

6.0 Area Detail

6.1 Mitigation Measures Area

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.1470	5.0000e-005	5.0900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0109	0.0109	3.0000e-005		0.0117
Unmitigated	0.1470	5.0000e-005	5.0900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0109	0.0109	3.0000e-005		0.0117

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0180					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1286					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	4.7000e-004	5.0000e-005	5.0900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0109	0.0109	3.0000e-005		0.0117
Total	0.1470	5.0000e-005	5.0900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0109	0.0109	3.0000e-005		0.0117

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6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0180					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1286					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	4.7000e-004	5.0000e-005	5.0900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0109	0.0109	3.0000e-005		0.0117
Total	0.1470	5.0000e-005	5.0900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0109	0.0109	3.0000e-005		0.0117

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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04701806 Farm Market Improvement Development - Riverside-South Coast County, Summer

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

04701806 Farm Market Improvement Development - Riverside-South Coast County, Winter

04701806 Farm Market Improvement Development
Riverside-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Regional Shopping Center	2.00	1000sqft	0.05	2,000.00	0
High Turnover (Sit Down Restaurant)	2.50	1000sqft	0.06	2,500.00	0
Convenience Market With Gas Pumps	8.00	Pump	0.03	1,129.40	0
Parking Lot	37.00	Space	0.63	27,443.00	0
Other Non-Asphalt Surfaces	0.48	Acre	0.48	20,908.80	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.4	Precipitation Freq (Days)	28
Climate Zone	10			Operational Year	2024
Utility Company	Southern California Edison				
CO2 Intensity (lb/MW hr)	702.44	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

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04701806 Farm Market Improvement Development - Riverside-South Coast County, Winter

Project Characteristics -

Land Use - ~1.7 ac site - ~0.45 ac existing to remain = ~1.25 ac to be developed w/ 2TSF retail, 2.5TSF restaurant, 8 fuel pump gas station, ~50% (~0.63 ac) of site paving (includes 37 new parking spaces), & remainder landscaping (~0.48 ac).

Construction Phase - Per TIA opening year is 2024, used CalEEMod default timing. No demo, only site prep to remove some of the existing parking/landscaping areas.

Off-road Equipment -

Grading - Site anticipated to be balanced. Site prep of ~0.3 acres (~25% of site) to remove some of the existing landscaping/paving.

Trips and VMT - ~8 hauling trips needed during site prep to remove ~0.3 acres of existing paving/landscaping.

Vehicle Trips - Per TIA, 37.75 trips/TSF/day for retail, 112.18 trips/TSF/day for restaurant, & 172.01 trips/FP/day for gas station.

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation - Site is ~4.54 miles southeast of downtown portion of Moreno Valley.

Water Mitigation - Per CalGreen Standards, 20% indoor water reduction.

Waste Mitigation - AB 341 requires each jurisdiction in CA divert at least 75% of their waste away from landfills by 2020.

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET

04701806 Farm Market Improvement Development - Riverside-South Coast County, Winter

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	PhaseEndDate	11/13/2023	1/1/2024
tblConstructionPhase	PhaseEndDate	10/16/2023	12/4/2023
tblConstructionPhase	PhaseEndDate	1/9/2023	2/27/2023
tblConstructionPhase	PhaseEndDate	10/30/2023	12/18/2023
tblConstructionPhase	PhaseEndDate	1/3/2023	2/21/2023
tblConstructionPhase	PhaseStartDate	10/31/2023	12/19/2023
tblConstructionPhase	PhaseStartDate	1/10/2023	2/28/2023
tblConstructionPhase	PhaseStartDate	1/4/2023	2/22/2023
tblConstructionPhase	PhaseStartDate	10/17/2023	12/5/2023
tblConstructionPhase	PhaseStartDate	1/1/2023	2/18/2023
tblGrading	AcresOfGrading	1.00	0.30
tblLandUse	LandUseSquareFeet	14,800.00	27,443.00
tblLandUse	LotAcreage	0.33	0.63
tblTripsAndVMT	HaulingTripNumber	0.00	8.00
tblVehicleTrips	ST_TR	204.47	172.01
tblVehicleTrips	ST_TR	158.37	112.18
tblVehicleTrips	ST_TR	49.97	37.75
tblVehicleTrips	SU_TR	166.88	172.01
tblVehicleTrips	SU_TR	131.84	112.18
tblVehicleTrips	SU_TR	25.24	37.75
tblVehicleTrips	WD_TR	542.60	172.01
tblVehicleTrips	WD_TR	127.15	112.18
tblVehicleTrips	WD_TR	42.70	37.75

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2.0 Emissions Summary

04701806 Farm Market Improvement Development - Riverside-South Coast County, Winter

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	6.7712	12.9394	13.3090	0.0262	5.5878	0.5165	6.0966	2.9565	0.4987	3.4247	0.0000	2,425.0907	2,425.0907	0.5558	0.0000	2,434.0412
2024	6.7594	1.2270	1.9049	3.3100e-003	0.0447	0.0612	0.1059	0.0119	0.0611	0.0730	0.0000	315.5950	315.5950	0.0165	0.0000	316.0075
Maximum	6.7712	12.9394	13.3090	0.0262	5.5878	0.5165	6.0966	2.9565	0.4987	3.4247	0.0000	2,425.0907	2,425.0907	0.5558	0.0000	2,434.0412

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	6.7712	12.9394	13.3090	0.0262	2.2765	0.5165	2.7853	1.1792	0.4987	1.6474	0.0000	2,425.0907	2,425.0907	0.5558	0.0000	2,434.0412
2024	6.7594	1.2270	1.9049	3.3100e-003	0.0447	0.0612	0.1059	0.0119	0.0611	0.0730	0.0000	315.5950	315.5950	0.0165	0.0000	316.0075
Maximum	6.7712	12.9394	13.3090	0.0262	2.2765	0.5165	2.7853	1.1792	0.4987	1.6474	0.0000	2,425.0907	2,425.0907	0.5558	0.0000	2,434.0412

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	58.79	0.00	53.39	59.88	0.00	50.81	0.00	0.00	0.00	0.00	0.00	0.00

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04701806 Farm Market Improvement Development - Riverside-South Coast County, Winter

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.1470	5.0000e-005	5.0900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0109	0.0109	3.0000e-005		0.0117
Energy	0.0204	0.1855	0.1558	1.1100e-003		0.0141	0.0141		0.0141	0.0141		222.5777	222.5777	4.2700e-003	4.0800e-003	223.9004
Mobile	1.6880	12.4634	11.4143	0.0466	2.9141	0.0274	2.9415	0.7795	0.0255	0.8050		4,799.4368	4,799.4368	0.4021		4,809.4905
Total	1.8554	12.6489	11.5752	0.0477	2.9141	0.0416	2.9556	0.7795	0.0396	0.8191		5,022.0255	5,022.0255	0.4064	4.0800e-003	5,033.4025

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.1470	5.0000e-005	5.0900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0109	0.0109	3.0000e-005		0.0117
Energy	0.0204	0.1855	0.1558	1.1100e-003		0.0141	0.0141		0.0141	0.0141		222.5777	222.5777	4.2700e-003	4.0800e-003	223.9004
Mobile	1.6634	12.2949	10.7492	0.0429	2.5517	0.0252	2.5770	0.6826	0.0235	0.7060		4,417.5032	4,417.5032	0.3923		4,427.3115
Total	1.8308	12.4804	10.9101	0.0440	2.5517	0.0393	2.5911	0.6826	0.0376	0.7202		4,640.0918	4,640.0918	0.3966	4.0800e-003	4,651.2235

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	1.32	1.33	5.75	7.84	12.43	5.32	12.33	12.43	5.22	12.08	0.00	7.61	7.61	2.41	0.00	7.59

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	2/18/2023	2/21/2023	5	2	
2	Grading	Grading	2/22/2023	2/27/2023	5	4	
3	Building Construction	Building Construction	2/28/2023	12/4/2023	5	200	
4	Paving	Paving	12/5/2023	12/18/2023	5	10	
5	Architectural Coating	Architectural Coating	12/19/2023	1/1/2024	5	10	

Acres of Grading (Site Preparation Phase): 0.3

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 1.11

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 8,444; Non-Residential Outdoor: 2,815; Striped Parking Area: 2,901 (Architectural Coating – sqft)

OffRoad Equipment

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Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Site Preparation	Graders	1	8.00	187	0.41
Paving	Pavers	1	6.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	6.00	187	0.41
Paving	Paving Equipment	1	8.00	132	0.36
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Building Construction	Welders	3	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	3	8.00	0.00	8.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	22.00	9.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	4.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

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04701806 Farm Market Improvement Development - Riverside-South Coast County, Winter

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.4284	0.0000	5.4284	2.9136	0.0000	2.9136			0.0000			0.0000
Off-Road	1.1339	12.4250	6.6420	0.0172		0.5074	0.5074		0.4668	0.4668		1,666.057 3	1,666.057 3	0.5388		1,679.528 2
Total	1.1339	12.4250	6.6420	0.0172	5.4284	0.5074	5.9358	2.9136	0.4668	3.3804		1,666.057 3	1,666.057 3	0.5388		1,679.528 2

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04701806 Farm Market Improvement Development - Riverside-South Coast County, Winter

3.2 Site Preparation - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0134	0.4963	0.1100	2.8000e-003	0.0700	9.7000e-004	0.0709	0.0192	9.3000e-004	0.0201		297.9403	297.9403	0.0156		298.3293
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0328	0.0181	0.2026	7.1000e-004	0.0894	5.0000e-004	0.0899	0.0237	4.6000e-004	0.0242		70.8330	70.8330	1.4300e-003		70.8686
Total	0.0462	0.5144	0.3126	3.5100e-003	0.1594	1.4700e-003	0.1609	0.0429	1.3900e-003	0.0443		368.7732	368.7732	0.0170		369.1979

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.1171	0.0000	2.1171	1.1363	0.0000	1.1363			0.0000			0.0000
Off-Road	1.1339	12.4250	6.6420	0.0172		0.5074	0.5074		0.4668	0.4668	0.0000	1,666.0573	1,666.0573	0.5388		1,679.5282
Total	1.1339	12.4250	6.6420	0.0172	2.1171	0.5074	2.6245	1.1363	0.4668	1.6031	0.0000	1,666.0573	1,666.0573	0.5388		1,679.5282

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3.2 Site Preparation - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0134	0.4963	0.1100	2.8000e-003	0.0700	9.7000e-004	0.0709	0.0192	9.3000e-004	0.0201		297.9403	297.9403	0.0156		298.3293
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0328	0.0181	0.2026	7.1000e-004	0.0894	5.0000e-004	0.0899	0.0237	4.6000e-004	0.0242		70.8330	70.8330	1.4300e-003		70.8686
Total	0.0462	0.5144	0.3126	3.5100e-003	0.1594	1.4700e-003	0.1609	0.0429	1.3900e-003	0.0443		368.7732	368.7732	0.0170		369.1979

3.3 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.9143	0.0000	4.9143	2.5256	0.0000	2.5256			0.0000			0.0000
Off-Road	0.9335	10.1789	5.5516	0.0141		0.4201	0.4201		0.3865	0.3865		1,364.7713	1,364.7713	0.4414		1,375.8062
Total	0.9335	10.1789	5.5516	0.0141	4.9143	0.4201	5.3343	2.5256	0.3865	2.9121		1,364.7713	1,364.7713	0.4414		1,375.8062

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3.3 Grading - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0328	0.0181	0.2026	7.1000e-004	0.0894	5.0000e-004	0.0899	0.0237	4.6000e-004	0.0242		70.8330	70.8330	1.4300e-003		70.8686
Total	0.0328	0.0181	0.2026	7.1000e-004	0.0894	5.0000e-004	0.0899	0.0237	4.6000e-004	0.0242		70.8330	70.8330	1.4300e-003		70.8686

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.9166	0.0000	1.9166	0.9850	0.0000	0.9850			0.0000			0.0000
Off-Road	0.9335	10.1789	5.5516	0.0141		0.4201	0.4201		0.3865	0.3865	0.0000	1,364.7713	1,364.7713	0.4414		1,375.8062
Total	0.9335	10.1789	5.5516	0.0141	1.9166	0.4201	2.3367	0.9850	0.3865	1.3715	0.0000	1,364.7713	1,364.7713	0.4414		1,375.8062

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04701806 Farm Market Improvement Development - Riverside-South Coast County, Winter

3.3 Grading - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0328	0.0181	0.2026	7.1000e-004	0.0894	5.0000e-004	0.0899	0.0237	4.6000e-004	0.0242		70.8330	70.8330	1.4300e-003		70.8686
Total	0.0328	0.0181	0.2026	7.1000e-004	0.0894	5.0000e-004	0.0899	0.0237	4.6000e-004	0.0242		70.8330	70.8330	1.4300e-003		70.8686

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5233	11.7104	12.6111	0.0221		0.5145	0.5145		0.4968	0.4968		2,001.7877	2,001.7877	0.3399		2,010.2858
Total	1.5233	11.7104	12.6111	0.0221		0.5145	0.5145		0.4968	0.4968		2,001.7877	2,001.7877	0.3399		2,010.2858

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3.4 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0159	0.5828	0.1407	2.1700e-003	0.0576	6.1000e-004	0.0582	0.0166	5.9000e-004	0.0172		228.5124	228.5124	0.0142		228.8667
Worker	0.0903	0.0498	0.5572	1.9500e-003	0.2459	1.3800e-003	0.2473	0.0652	1.2700e-003	0.0665		194.7907	194.7907	3.9200e-003		194.8888
Total	0.1062	0.6327	0.6979	4.1200e-003	0.3035	1.9900e-003	0.3055	0.0818	1.8600e-003	0.0837		423.3030	423.3030	0.0181		423.7555

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5233	11.7104	12.6111	0.0221		0.5145	0.5145		0.4968	0.4968	0.0000	2,001.7877	2,001.7877	0.3399		2,010.2858
Total	1.5233	11.7104	12.6111	0.0221		0.5145	0.5145		0.4968	0.4968	0.0000	2,001.7877	2,001.7877	0.3399		2,010.2858

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3.4 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0159	0.5828	0.1407	2.1700e-003	0.0576	6.1000e-004	0.0582	0.0166	5.9000e-004	0.0172		228.5124	228.5124	0.0142		228.8667
Worker	0.0903	0.0498	0.5572	1.9500e-003	0.2459	1.3800e-003	0.2473	0.0652	1.2700e-003	0.0665		194.7907	194.7907	3.9200e-003		194.8888
Total	0.1062	0.6327	0.6979	4.1200e-003	0.3035	1.9900e-003	0.3055	0.0818	1.8600e-003	0.0837		423.3030	423.3030	0.0181		423.7555

3.5 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6446	6.2357	8.8024	0.0136		0.3084	0.3084		0.2846	0.2846		1,297.6880	1,297.6880	0.4114		1,307.9725
Paving	0.1651					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.8097	6.2357	8.8024	0.0136		0.3084	0.3084		0.2846	0.2846		1,297.6880	1,297.6880	0.4114		1,307.9725

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3.5 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0534	0.0294	0.3293	1.1500e-003	0.1453	8.1000e-004	0.1461	0.0385	7.5000e-004	0.0393		115.1036	115.1036	2.3200e-003		115.1616
Total	0.0534	0.0294	0.3293	1.1500e-003	0.1453	8.1000e-004	0.1461	0.0385	7.5000e-004	0.0393		115.1036	115.1036	2.3200e-003		115.1616

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6446	6.2357	8.8024	0.0136		0.3084	0.3084		0.2846	0.2846	0.0000	1,297.6880	1,297.6880	0.4114		1,307.9725
Paving	0.1651					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.8097	6.2357	8.8024	0.0136		0.3084	0.3084		0.2846	0.2846	0.0000	1,297.6880	1,297.6880	0.4114		1,307.9725

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3.5 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0534	0.0294	0.3293	1.1500e-003	0.1453	8.1000e-004	0.1461	0.0385	7.5000e-004	0.0393		115.1036	115.1036	2.3200e-003		115.1616
Total	0.0534	0.0294	0.3293	1.1500e-003	0.1453	8.1000e-004	0.1461	0.0385	7.5000e-004	0.0393		115.1036	115.1036	2.3200e-003		115.1616

3.6 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	6.5632					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	6.7548	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690

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3.6 Architectural Coating - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0164	9.0600e-003	0.1013	3.6000e-004	0.0447	2.5000e-004	0.0450	0.0119	2.3000e-004	0.0121		35.4165	35.4165	7.1000e-004		35.4343
Total	0.0164	9.0600e-003	0.1013	3.6000e-004	0.0447	2.5000e-004	0.0450	0.0119	2.3000e-004	0.0121		35.4165	35.4165	7.1000e-004		35.4343

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	6.5632					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	6.7548	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690

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3.6 Architectural Coating - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0164	9.0600e-003	0.1013	3.6000e-004	0.0447	2.5000e-004	0.0450	0.0119	2.3000e-004	0.0121		35.4165	35.4165	7.1000e-004		35.4343
Total	0.0164	9.0600e-003	0.1013	3.6000e-004	0.0447	2.5000e-004	0.0450	0.0119	2.3000e-004	0.0121		35.4165	35.4165	7.1000e-004		35.4343

3.6 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	6.5632					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	6.7439	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443

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3.6 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0155	8.2100e-003	0.0948	3.4000e-004	0.0447	2.5000e-004	0.0450	0.0119	2.3000e-004	0.0121		34.1469	34.1469	6.5000e-004		34.1632
Total	0.0155	8.2100e-003	0.0948	3.4000e-004	0.0447	2.5000e-004	0.0450	0.0119	2.3000e-004	0.0121		34.1469	34.1469	6.5000e-004		34.1632

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	6.5632					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
Total	6.7439	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443

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3.6 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0155	8.2100e-003	0.0948	3.4000e-004	0.0447	2.5000e-004	0.0450	0.0119	2.3000e-004	0.0121		34.1469	34.1469	6.5000e-004		34.1632
Total	0.0155	8.2100e-003	0.0948	3.4000e-004	0.0447	2.5000e-004	0.0450	0.0119	2.3000e-004	0.0121		34.1469	34.1469	6.5000e-004		34.1632

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Destination Accessibility

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.6634	12.2949	10.7492	0.0429	2.5517	0.0252	2.5770	0.6826	0.0235	0.7060		4,417.503 2	4,417.503 2	0.3923		4,427.3115
Unmitigated	1.6880	12.4634	11.4143	0.0466	2.9141	0.0274	2.9415	0.7795	0.0255	0.8050		4,799.436 8	4,799.436 8	0.4021		4,809.490 5

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Convenience Market With Gas Pumps	1,376.08	1,376.08	1376.08	821,347	719,226
High Turnover (Sit Down Restaurant)	280.45	280.45	280.45	382,206	334,685
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Regional Shopping Center	75.50	75.50	75.50	163,295	142,992
Total	1,732.03	1,732.03	1,732.03	1,366,848	1,196,903

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Convenience Market With Gas	16.60	8.40	6.90	0.80	80.20	19.00	14	21	65
High Turnover (Sit Down)	16.60	8.40	6.90	8.50	72.50	19.00	37	20	43
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11

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4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Convenience Market With Gas Pumps	0.551648	0.035769	0.187848	0.110184	0.013450	0.004660	0.017552	0.070120	0.001413	0.001134	0.004476	0.000905	0.000840
High Turnover (Sit Down Restaurant)	0.551648	0.035769	0.187848	0.110184	0.013450	0.004660	0.017552	0.070120	0.001413	0.001134	0.004476	0.000905	0.000840
Other Non-Asphalt Surfaces	0.551648	0.035769	0.187848	0.110184	0.013450	0.004660	0.017552	0.070120	0.001413	0.001134	0.004476	0.000905	0.000840
Parking Lot	0.551648	0.035769	0.187848	0.110184	0.013450	0.004660	0.017552	0.070120	0.001413	0.001134	0.004476	0.000905	0.000840
Regional Shopping Center	0.551648	0.035769	0.187848	0.110184	0.013450	0.004660	0.017552	0.070120	0.001413	0.001134	0.004476	0.000905	0.000840

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0204	0.1855	0.1558	1.1100e-003		0.0141	0.0141		0.0141	0.0141		222.5777	222.5777	4.2700e-003	4.0800e-003	223.9004
NaturalGas Unmitigated	0.0204	0.1855	0.1558	1.1100e-003		0.0141	0.0141		0.0141	0.0141		222.5777	222.5777	4.2700e-003	4.0800e-003	223.9004

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5.2 Energy by Land Use - Natural Gas

Unmitigated

	Natural Gas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Convenience Market With Gas Pumps	6.86923	7.0000e-005	6.7000e-004	5.7000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.8081	0.8081	2.0000e-005	1.0000e-005	0.8130
High Turnover (Sit Down Restaurant)	1872.88	0.0202	0.1836	0.1542	1.1000e-003		0.0140	0.0140		0.0140	0.0140		220.3384	220.3384	4.2200e-003	4.0400e-003	221.6478
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	12.1644	1.3000e-004	1.1900e-003	1.0000e-003	1.0000e-005		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005		1.4311	1.4311	3.0000e-005	3.0000e-005	1.4396
Total		0.0204	0.1855	0.1558	1.1100e-003		0.0141	0.0141		0.0141	0.0141		222.5777	222.5777	4.2700e-003	4.0800e-003	223.9004

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04701806 Farm Market Improvement Development - Riverside-South Coast County, Winter

5.2 Energy by Land Use - Natural Gas

Mitigated

	Natural Gas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Convenience Market With Gas Pumps	0.00686923	7.0000e-005	6.7000e-004	5.7000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.8081	0.8081	2.0000e-005	1.0000e-005	0.8130
High Turnover (Sit Down Restaurant)	1.87288	0.0202	0.1836	0.1542	1.1000e-003		0.0140	0.0140		0.0140	0.0140		220.3384	220.3384	4.2200e-003	4.0400e-003	221.6478
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0.0121644	1.3000e-004	1.1900e-003	1.0000e-003	1.0000e-005		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005		1.4311	1.4311	3.0000e-005	3.0000e-005	1.4396
Total		0.0204	0.1855	0.1558	1.1100e-003		0.0141	0.0141		0.0141	0.0141		222.5777	222.5777	4.2700e-003	4.0800e-003	223.9004

6.0 Area Detail

6.1 Mitigation Measures Area

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET

04701806 Farm Market Improvement Development - Riverside-South Coast County, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.1470	5.0000e-005	5.0900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0109	0.0109	3.0000e-005		0.0117
Unmitigated	0.1470	5.0000e-005	5.0900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0109	0.0109	3.0000e-005		0.0117

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0180					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1286					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	4.7000e-004	5.0000e-005	5.0900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0109	0.0109	3.0000e-005		0.0117
Total	0.1470	5.0000e-005	5.0900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0109	0.0109	3.0000e-005		0.0117

04701806 Farm Market Improvement Development - Riverside-South Coast County, Winter

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0180					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1286					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	4.7000e-004	5.0000e-005	5.0900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0109	0.0109	3.0000e-005		0.0117
Total	0.1470	5.0000e-005	5.0900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0109	0.0109	3.0000e-005		0.0117

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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04701806 Farm Market Improvement Development - Riverside-South Coast County, Winter

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET

Appendix B:

CalEEMod Annual Emission Output

04701806 Farm Market Improvement Development - Riverside-South Coast County, Annual

**04701806 Farm Market Improvement Development
Riverside-South Coast County, Annual**

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Regional Shopping Center	2.00	1000sqft	0.05	2,000.00	0
High Turnover (Sit Down Restaurant)	2.50	1000sqft	0.06	2,500.00	0
Convenience Market With Gas Pumps	8.00	Pump	0.03	1,129.40	0
Parking Lot	37.00	Space	0.63	27,443.00	0
Other Non-Asphalt Surfaces	0.48	Acre	0.48	20,908.80	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.4	Precipitation Freq (Days)	28
Climate Zone	10			Operational Year	2024
Utility Company	Southern California Edison				
CO2 Intensity (lb/MW hr)	702.44	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

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Project Characteristics -

Land Use - ~1.7 ac site - ~0.45 ac existing to remain = ~1.25 ac to be developed w/ 2TSF retail, 2.5TSF restaurant, 8 fuel pump gas station, ~50% (~0.63 ac) of site paving (includes 37 new parking spaces), & remainder landscaping (~0.48 ac).

Construction Phase - Per TIA opening year is 2024, used CalEEMod default timing. No demo, only site prep to remove some of the existing parking/landscaping areas.

Off-road Equipment -

Grading - Site anticipated to be balanced. Site prep of ~0.3 acres (~25% of site) to remove some of the existing landscaping/paving.

Trips and VMT - ~8 hauling trips needed during site prep to remove ~0.3 acres of existing paving/landscaping.

Vehicle Trips - Per TIA, 37.75 trips/TSF/day for retail, 112.18 trips/TSF/day for restaurant, & 172.01 trips/FP/day for gas station.

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation - Site is ~4.54 miles southeast of downtown portion of Moreno Valley.

Water Mitigation - Per CalGreen Standards, 20% indoor water reduction.

Waste Mitigation - AB 341 requires each jurisdiction in CA divert at least 75% of their waste away from landfills by 2020.

04701806 Farm Market Improvement Development - Riverside-South Coast County, Annual

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	PhaseEndDate	11/13/2023	1/1/2024
tblConstructionPhase	PhaseEndDate	10/16/2023	12/4/2023
tblConstructionPhase	PhaseEndDate	1/9/2023	2/27/2023
tblConstructionPhase	PhaseEndDate	10/30/2023	12/18/2023
tblConstructionPhase	PhaseEndDate	1/3/2023	2/21/2023
tblConstructionPhase	PhaseStartDate	10/31/2023	12/19/2023
tblConstructionPhase	PhaseStartDate	1/10/2023	2/28/2023
tblConstructionPhase	PhaseStartDate	1/4/2023	2/22/2023
tblConstructionPhase	PhaseStartDate	10/17/2023	12/5/2023
tblConstructionPhase	PhaseStartDate	1/1/2023	2/18/2023
tblGrading	AcresOfGrading	1.00	0.30
tblLandUse	LandUseSquareFeet	14,800.00	27,443.00
tblLandUse	LotAcreage	0.33	0.63
tblTripsAndVMT	HaulingTripNumber	0.00	8.00
tblVehicleTrips	ST_TR	204.47	172.01
tblVehicleTrips	ST_TR	158.37	112.18
tblVehicleTrips	ST_TR	49.97	37.75
tblVehicleTrips	SU_TR	166.88	172.01
tblVehicleTrips	SU_TR	131.84	112.18
tblVehicleTrips	SU_TR	25.24	37.75
tblVehicleTrips	WD_TR	542.60	172.01
tblVehicleTrips	WD_TR	127.15	112.18
tblVehicleTrips	WD_TR	42.70	37.75

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2.0 Emissions Summary

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2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.2000	1.3059	1.4059	2.7700e-003	0.0464	0.0549	0.1012	0.0164	0.0529	0.0692	0.0000	233.0990	233.0990	0.0357	0.0000	233.9909
2024	3.3800e-003	6.1000e-004	9.6000e-004	0.0000	2.0000e-005	3.0000e-005	5.0000e-005	1.0000e-005	3.0000e-005	4.0000e-005	0.0000	0.1436	0.1436	1.0000e-005	0.0000	0.1437
Maximum	0.2000	1.3059	1.4059	2.7700e-003	0.0464	0.0549	0.1012	0.0164	0.0529	0.0692	0.0000	233.0990	233.0990	0.0357	0.0000	233.9909

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.2000	1.3059	1.4059	2.7700e-003	0.0371	0.0549	0.0919	0.0115	0.0529	0.0644	0.0000	233.0987	233.0987	0.0357	0.0000	233.9906
2024	3.3800e-003	6.1000e-004	9.6000e-004	0.0000	2.0000e-005	3.0000e-005	5.0000e-005	1.0000e-005	3.0000e-005	4.0000e-005	0.0000	0.1436	0.1436	1.0000e-005	0.0000	0.1437
Maximum	0.2000	1.3059	1.4059	2.7700e-003	0.0371	0.0549	0.0919	0.0115	0.0529	0.0644	0.0000	233.0987	233.0987	0.0357	0.0000	233.9906

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	20.07	0.00	9.19	29.69	0.00	7.02	0.00	0.00	0.00	0.00	0.00	0.00

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Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2023	3-31-2023	0.2038	0.2038
2	4-1-2023	6-30-2023	0.4543	0.4543
3	7-1-2023	9-30-2023	0.4593	0.4593
4	10-1-2023	12-31-2023	0.3975	0.3975
5	1-1-2024	3-31-2024	0.0029	0.0029
		Highest	0.4593	0.4593

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0268	1.0000e-005	6.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.2400e-003	1.2400e-003	0.0000	0.0000	1.3200e-003
Energy	3.7200e-003	0.0339	0.0284	2.0000e-004		2.5700e-003	2.5700e-003		2.5700e-003	2.5700e-003	0.0000	90.3243	90.3243	2.9100e-003	1.1300e-003	90.7346
Mobile	0.3069	2.3072	2.0733	8.8000e-003	0.5217	4.9400e-003	0.5266	0.1397	4.5900e-003	0.1443	0.0000	822.0914	822.0914	0.0631	0.0000	823.6681
Waste						0.0000	0.0000		0.0000	0.0000	6.4653	0.0000	6.4653	0.3821	0.0000	16.0174
Water						0.0000	0.0000		0.0000	0.0000	0.3143	4.7843	5.0986	0.0325	8.0000e-004	6.1498
Total	0.3374	2.3411	2.1024	9.0000e-003	0.5217	7.5100e-003	0.5292	0.1397	7.1600e-003	0.1469	6.7795	917.2012	923.9808	0.4806	1.9300e-003	936.5712

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2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0268	1.0000e-005	6.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.2400e-003	1.2400e-003	0.0000	0.0000	1.3200e-003
Energy	3.7200e-003	0.0339	0.0284	2.0000e-004		2.5700e-003	2.5700e-003		2.5700e-003	2.5700e-003	0.0000	90.3243	90.3243	2.9100e-003	1.1300e-003	90.7346
Mobile	0.3024	2.2761	1.9455	8.1100e-003	0.4568	4.5300e-003	0.4614	0.1224	4.2100e-003	0.1266	0.0000	758.0536	758.0536	0.0614	0.0000	759.5893
Waste						0.0000	0.0000		0.0000	0.0000	1.6163	0.0000	1.6163	0.0955	0.0000	4.0044
Water						0.0000	0.0000		0.0000	0.0000	0.2514	3.9623	4.2137	0.0260	6.4000e-004	5.0552
Total	0.3329	2.3100	1.9746	8.3100e-003	0.4568	7.1000e-003	0.4639	0.1224	6.7800e-003	0.1292	1.8678	852.3414	854.2092	0.1859	1.7700e-003	859.3847

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	1.35	1.33	6.08	7.67	12.43	5.46	12.33	12.43	5.31	12.08	72.45	7.07	7.55	61.33	8.29	8.24

3.0 Construction Detail

Construction Phase

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Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	2/18/2023	2/21/2023	5	2	
2	Grading	Grading	2/22/2023	2/27/2023	5	4	
3	Building Construction	Building Construction	2/28/2023	12/4/2023	5	200	
4	Paving	Paving	12/5/2023	12/18/2023	5	10	
5	Architectural Coating	Architectural Coating	12/19/2023	1/1/2024	5	10	

Acres of Grading (Site Preparation Phase): 0.3

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 1.11

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 8,444; Non-Residential Outdoor: 2,815; Striped Parking Area: 2,901 (Architectural Coating – sqft)

OffRoad Equipment

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Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Site Preparation	Graders	1	8.00	187	0.41
Paving	Pavers	1	6.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	6.00	187	0.41
Paving	Paving Equipment	1	8.00	132	0.36
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Building Construction	Welders	3	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	3	8.00	0.00	8.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	22.00	9.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	4.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

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3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.4300e-003	0.0000	5.4300e-003	2.9100e-003	0.0000	2.9100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.1300e-003	0.0124	6.6400e-003	2.0000e-005		5.1000e-004	5.1000e-004		4.7000e-004	4.7000e-004	0.0000	1.5114	1.5114	4.9000e-004	0.0000	1.5236
Total	1.1300e-003	0.0124	6.6400e-003	2.0000e-005	5.4300e-003	5.1000e-004	5.9400e-003	2.9100e-003	4.7000e-004	3.3800e-003	0.0000	1.5114	1.5114	4.9000e-004	0.0000	1.5236

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3.2 Site Preparation - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-005	5.0000e-004	1.0000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.2743	0.2743	1.0000e-005	0.0000	0.2747
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	2.1000e-004	0.0000	9.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0659	0.0659	0.0000	0.0000	0.0660
Total	4.0000e-005	5.2000e-004	3.1000e-004	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.3402	0.3402	1.0000e-005	0.0000	0.3406

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.1200e-003	0.0000	2.1200e-003	1.1400e-003	0.0000	1.1400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.1300e-003	0.0124	6.6400e-003	2.0000e-005		5.1000e-004	5.1000e-004		4.7000e-004	4.7000e-004	0.0000	1.5114	1.5114	4.9000e-004	0.0000	1.5236
Total	1.1300e-003	0.0124	6.6400e-003	2.0000e-005	2.1200e-003	5.1000e-004	2.6300e-003	1.1400e-003	4.7000e-004	1.6100e-003	0.0000	1.5114	1.5114	4.9000e-004	0.0000	1.5236

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3.2 Site Preparation - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-005	5.0000e-004	1.0000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.2743	0.2743	1.0000e-005	0.0000	0.2747
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	2.1000e-004	0.0000	9.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0659	0.0659	0.0000	0.0000	0.0660
Total	4.0000e-005	5.2000e-004	3.1000e-004	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.3402	0.3402	1.0000e-005	0.0000	0.3406

3.3 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					9.8300e-003	0.0000	9.8300e-003	5.0500e-003	0.0000	5.0500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.8700e-003	0.0204	0.0111	3.0000e-005		8.4000e-004	8.4000e-004		7.7000e-004	7.7000e-004	0.0000	2.4762	2.4762	8.0000e-004	0.0000	2.4962
Total	1.8700e-003	0.0204	0.0111	3.0000e-005	9.8300e-003	8.4000e-004	0.0107	5.0500e-003	7.7000e-004	5.8200e-003	0.0000	2.4762	2.4762	8.0000e-004	0.0000	2.4962

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3.3 Grading - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-005	4.0000e-005	4.3000e-004	0.0000	1.8000e-004	0.0000	1.8000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1318	0.1318	0.0000	0.0000	0.1319
Total	6.0000e-005	4.0000e-005	4.3000e-004	0.0000	1.8000e-004	0.0000	1.8000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1318	0.1318	0.0000	0.0000	0.1319

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					3.8300e-003	0.0000	3.8300e-003	1.9700e-003	0.0000	1.9700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.8700e-003	0.0204	0.0111	3.0000e-005		8.4000e-004	8.4000e-004		7.7000e-004	7.7000e-004	0.0000	2.4762	2.4762	8.0000e-004	0.0000	2.4962
Total	1.8700e-003	0.0204	0.0111	3.0000e-005	3.8300e-003	8.4000e-004	4.6700e-003	1.9700e-003	7.7000e-004	2.7400e-003	0.0000	2.4762	2.4762	8.0000e-004	0.0000	2.4962

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3.3 Grading - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-005	4.0000e-005	4.3000e-004	0.0000	1.8000e-004	0.0000	1.8000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1318	0.1318	0.0000	0.0000	0.1319
Total	6.0000e-005	4.0000e-005	4.3000e-004	0.0000	1.8000e-004	0.0000	1.8000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1318	0.1318	0.0000	0.0000	0.1319

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1523	1.1710	1.2611	2.2100e-003		0.0515	0.0515		0.0497	0.0497	0.0000	181.5991	181.5991	0.0308	0.0000	182.3701
Total	0.1523	1.1710	1.2611	2.2100e-003		0.0515	0.0515		0.0497	0.0497	0.0000	181.5991	181.5991	0.0308	0.0000	182.3701

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3.4 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.5300e-003	0.0591	0.0131	2.2000e-004	5.6800e-003	6.0000e-005	5.7400e-003	1.6400e-003	6.0000e-005	1.7000e-003	0.0000	21.1952	21.1952	1.2100e-003	0.0000	21.2255
Worker	8.3000e-003	5.1500e-003	0.0588	2.0000e-004	0.0242	1.4000e-004	0.0243	6.4200e-003	1.3000e-004	6.5500e-003	0.0000	18.1260	18.1260	3.7000e-004	0.0000	18.1352
Total	9.8300e-003	0.0643	0.0719	4.2000e-004	0.0299	2.0000e-004	0.0301	8.0600e-003	1.9000e-004	8.2500e-003	0.0000	39.3211	39.3211	1.5800e-003	0.0000	39.3607

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1523	1.1710	1.2611	2.2100e-003		0.0515	0.0515		0.0497	0.0497	0.0000	181.5989	181.5989	0.0308	0.0000	182.3698
Total	0.1523	1.1710	1.2611	2.2100e-003		0.0515	0.0515		0.0497	0.0497	0.0000	181.5989	181.5989	0.0308	0.0000	182.3698

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3.4 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.5300e-003	0.0591	0.0131	2.2000e-004	5.6800e-003	6.0000e-005	5.7400e-003	1.6400e-003	6.0000e-005	1.7000e-003	0.0000	21.1952	21.1952	1.2100e-003	0.0000	21.2255
Worker	8.3000e-003	5.1500e-003	0.0588	2.0000e-004	0.0242	1.4000e-004	0.0243	6.4200e-003	1.3000e-004	6.5500e-003	0.0000	18.1260	18.1260	3.7000e-004	0.0000	18.1352
Total	9.8300e-003	0.0643	0.0719	4.2000e-004	0.0299	2.0000e-004	0.0301	8.0600e-003	1.9000e-004	8.2500e-003	0.0000	39.3211	39.3211	1.5800e-003	0.0000	39.3607

3.5 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.2200e-003	0.0312	0.0440	7.0000e-005		1.5400e-003	1.5400e-003		1.4200e-003	1.4200e-003	0.0000	5.8862	5.8862	1.8700e-003	0.0000	5.9329
Paving	8.3000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	4.0500e-003	0.0312	0.0440	7.0000e-005		1.5400e-003	1.5400e-003		1.4200e-003	1.4200e-003	0.0000	5.8862	5.8862	1.8700e-003	0.0000	5.9329

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3.5 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.5000e-004	1.5000e-004	1.7400e-003	1.0000e-005	7.1000e-004	0.0000	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.5355	0.5355	1.0000e-005	0.0000	0.5358
Total	2.5000e-004	1.5000e-004	1.7400e-003	1.0000e-005	7.1000e-004	0.0000	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.5355	0.5355	1.0000e-005	0.0000	0.5358

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.2200e-003	0.0312	0.0440	7.0000e-005		1.5400e-003	1.5400e-003		1.4200e-003	1.4200e-003	0.0000	5.8862	5.8862	1.8700e-003	0.0000	5.9329
Paving	8.3000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	4.0500e-003	0.0312	0.0440	7.0000e-005		1.5400e-003	1.5400e-003		1.4200e-003	1.4200e-003	0.0000	5.8862	5.8862	1.8700e-003	0.0000	5.9329

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3.5 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.5000e-004	1.5000e-004	1.7400e-003	1.0000e-005	7.1000e-004	0.0000	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.5355	0.5355	1.0000e-005	0.0000	0.5358
Total	2.5000e-004	1.5000e-004	1.7400e-003	1.0000e-005	7.1000e-004	0.0000	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.5355	0.5355	1.0000e-005	0.0000	0.5358

3.6 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0295					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.6000e-004	5.8600e-003	8.1500e-003	1.0000e-005		3.2000e-004	3.2000e-004		3.2000e-004	3.2000e-004	0.0000	1.1490	1.1490	7.0000e-005	0.0000	1.1507
Total	0.0304	5.8600e-003	8.1500e-003	1.0000e-005		3.2000e-004	3.2000e-004		3.2000e-004	3.2000e-004	0.0000	1.1490	1.1490	7.0000e-005	0.0000	1.1507

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3.6 Architectural Coating - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.0000e-005	4.0000e-005	4.8000e-004	0.0000	2.0000e-004	0.0000	2.0000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1483	0.1483	0.0000	0.0000	0.1484
Total	7.0000e-005	4.0000e-005	4.8000e-004	0.0000	2.0000e-004	0.0000	2.0000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1483	0.1483	0.0000	0.0000	0.1484

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0295					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.6000e-004	5.8600e-003	8.1500e-003	1.0000e-005		3.2000e-004	3.2000e-004		3.2000e-004	3.2000e-004	0.0000	1.1490	1.1490	7.0000e-005	0.0000	1.1507
Total	0.0304	5.8600e-003	8.1500e-003	1.0000e-005		3.2000e-004	3.2000e-004		3.2000e-004	3.2000e-004	0.0000	1.1490	1.1490	7.0000e-005	0.0000	1.1507

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3.6 Architectural Coating - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.0000e-005	4.0000e-005	4.8000e-004	0.0000	2.0000e-004	0.0000	2.0000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1483	0.1483	0.0000	0.0000	0.1484
Total	7.0000e-005	4.0000e-005	4.8000e-004	0.0000	2.0000e-004	0.0000	2.0000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1483	0.1483	0.0000	0.0000	0.1484

3.6 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	3.2800e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.0000e-005	6.1000e-004	9.1000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.1277	0.1277	1.0000e-005	0.0000	0.1278
Total	3.3700e-003	6.1000e-004	9.1000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.1277	0.1277	1.0000e-005	0.0000	0.1278

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3.6 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-005	0.0000	5.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0159	0.0159	0.0000	0.0000	0.0159
Total	1.0000e-005	0.0000	5.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0159	0.0159	0.0000	0.0000	0.0159

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	3.2800e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.0000e-005	6.1000e-004	9.1000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.1277	0.1277	1.0000e-005	0.0000	0.1278
Total	3.3700e-003	6.1000e-004	9.1000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.1277	0.1277	1.0000e-005	0.0000	0.1278

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3.6 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-005	0.0000	5.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0159	0.0159	0.0000	0.0000	0.0159
Total	1.0000e-005	0.0000	5.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0159	0.0159	0.0000	0.0000	0.0159

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Destination Accessibility

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.3024	2.2761	1.9455	8.1100e-003	0.4568	4.5300e-003	0.4614	0.1224	4.2100e-003	0.1266	0.0000	758.0536	758.0536	0.0614	0.0000	759.5893
Unmitigated	0.3069	2.3072	2.0733	8.8000e-003	0.5217	4.9400e-003	0.5266	0.1397	4.5900e-003	0.1443	0.0000	822.0914	822.0914	0.0631	0.0000	823.6681

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Convenience Market With Gas Pumps	1,376.08	1,376.08	1376.08	821,347	719,226
High Turnover (Sit Down Restaurant)	280.45	280.45	280.45	382,206	334,685
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Regional Shopping Center	75.50	75.50	75.50	163,295	142,992
Total	1,732.03	1,732.03	1,732.03	1,366,848	1,196,903

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Convenience Market With Gas	16.60	8.40	6.90	0.80	80.20	19.00	14	21	65
High Turnover (Sit Down)	16.60	8.40	6.90	8.50	72.50	19.00	37	20	43
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11

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4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Convenience Market With Gas Pumps	0.551648	0.035769	0.187848	0.110184	0.013450	0.004660	0.017552	0.070120	0.001413	0.001134	0.004476	0.000905	0.000840
High Turnover (Sit Down Restaurant)	0.551648	0.035769	0.187848	0.110184	0.013450	0.004660	0.017552	0.070120	0.001413	0.001134	0.004476	0.000905	0.000840
Other Non-Asphalt Surfaces	0.551648	0.035769	0.187848	0.110184	0.013450	0.004660	0.017552	0.070120	0.001413	0.001134	0.004476	0.000905	0.000840
Parking Lot	0.551648	0.035769	0.187848	0.110184	0.013450	0.004660	0.017552	0.070120	0.001413	0.001134	0.004476	0.000905	0.000840
Regional Shopping Center	0.551648	0.035769	0.187848	0.110184	0.013450	0.004660	0.017552	0.070120	0.001413	0.001134	0.004476	0.000905	0.000840

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	53.4740	53.4740	2.2100e-003	4.6000e-004	53.6653
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	53.4740	53.4740	2.2100e-003	4.6000e-004	53.6653
NaturalGas Mitigated	3.7200e-003	0.0339	0.0284	2.0000e-004		2.5700e-003	2.5700e-003		2.5700e-003	2.5700e-003	0.0000	36.8502	36.8502	7.1000e-004	6.8000e-004	37.0692
NaturalGas Unmitigated	3.7200e-003	0.0339	0.0284	2.0000e-004		2.5700e-003	2.5700e-003		2.5700e-003	2.5700e-003	0.0000	36.8502	36.8502	7.1000e-004	6.8000e-004	37.0692

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5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Convenience Market With Gas Pumps	2507.27	1.0000e-005	1.2000e-004	1.0000e-004	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	0.1338	0.1338	0.0000	0.0000	0.1346
High Turnover (Sit Down Restaurant)	683600	3.6900e-003	0.0335	0.0282	2.0000e-004		2.5500e-003	2.5500e-003		2.5500e-003	2.5500e-003	0.0000	36.4795	36.4795	7.0000e-004	6.7000e-004	36.6963
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	4440	2.0000e-005	2.2000e-004	1.8000e-004	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.2369	0.2369	0.0000	0.0000	0.2383
Total		3.7200e-003	0.0339	0.0284	2.0000e-004		2.5800e-003	2.5800e-003		2.5800e-003	2.5800e-003	0.0000	36.8502	36.8502	7.0000e-004	6.7000e-004	37.0692

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5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Convenience Market With Gas Pumps	2507.27	1.0000e-005	1.2000e-004	1.0000e-004	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	0.1338	0.1338	0.0000	0.0000	0.1346
High Turnover (Sit Down Restaurant)	683600	3.6900e-003	0.0335	0.0282	2.0000e-004		2.5500e-003	2.5500e-003		2.5500e-003	2.5500e-003	0.0000	36.4795	36.4795	7.0000e-004	6.7000e-004	36.6963
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	4440	2.0000e-005	2.2000e-004	1.8000e-004	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.2369	0.2369	0.0000	0.0000	0.2383
Total		3.7200e-003	0.0339	0.0284	2.0000e-004		2.5800e-003	2.5800e-003		2.5800e-003	2.5800e-003	0.0000	36.8502	36.8502	7.0000e-004	6.7000e-004	37.0692

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5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Convenience Market With Gas Pumps	14264.3	4.5449	1.9000e-004	4.0000e-005	4.5612
High Turnover (Sit Down Restaurant)	118700	37.8204	1.5600e-003	3.2000e-004	37.9557
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	9605.05	3.0604	1.3000e-004	3.0000e-005	3.0713
Regional Shopping Center	25260	8.0484	3.3000e-004	7.0000e-005	8.0772
Total		53.4740	2.2100e-003	4.6000e-004	53.6653

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5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Convenience Market With Gas Pumps	14264.3	4.5449	1.9000e-004	4.0000e-005	4.5612
High Turnover (Sit Down Restaurant)	118700	37.8204	1.5600e-003	3.2000e-004	37.9557
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	9605.05	3.0604	1.3000e-004	3.0000e-005	3.0713
Regional Shopping Center	25260	8.0484	3.3000e-004	7.0000e-005	8.0772
Total		53.4740	2.2100e-003	4.6000e-004	53.6653

6.0 Area Detail

6.1 Mitigation Measures Area

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0268	1.0000e-005	6.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.2400e-003	1.2400e-003	0.0000	0.0000	1.3200e-003
Unmitigated	0.0268	1.0000e-005	6.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.2400e-003	1.2400e-003	0.0000	0.0000	1.3200e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	3.2800e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0235					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	6.0000e-005	1.0000e-005	6.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.2400e-003	1.2400e-003	0.0000	0.0000	1.3200e-003
Total	0.0268	1.0000e-005	6.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.2400e-003	1.2400e-003	0.0000	0.0000	1.3200e-003

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04701806 Farm Market Improvement Development - Riverside-South Coast County, Annual

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	3.2800e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0235					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	6.0000e-005	1.0000e-005	6.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.2400e-003	1.2400e-003	0.0000	0.0000	1.3200e-003
Total	0.0268	1.0000e-005	6.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.2400e-003	1.2400e-003	0.0000	0.0000	1.3200e-003

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

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	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	4.2137	0.0260	6.4000e-004	5.0552
Unmitigated	5.0986	0.0325	8.0000e-004	6.1498

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Convenience Market With Gas Pumps	0.0836574 / 0.0512739	0.5551	2.7500e-003	7.0000e-005	0.6443
High Turnover (Sit Down Restaurant)	0.758834 / 0.0484362	3.5604	0.0249	6.1000e-004	4.3645
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0.148145 / 0.0907986	0.9830	4.8700e-003	1.2000e-004	1.1410
Total		5.0986	0.0325	8.0000e-004	6.1498

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7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Convenience Market With Gas Pumps	0.0669259 / 0.0512739	0.4804	2.2000e-003	6.0000e-005	0.5519
High Turnover (Sit Down Restaurant)	0.607067 / 0.0484362	2.8826	0.0199	4.9000e-004	3.5260
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0.118516 / 0.0907986	0.8507	3.9000e-003	1.0000e-004	0.9773
Total		4.2138	0.0260	6.5000e-004	5.0552

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

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Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	1.6163	0.0955	0.0000	4.0044
Unmitigated	6.4653	0.3821	0.0000	16.0174

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
High Turnover (Sit Down Restaurant)	29.75	6.0390	0.3569	0.0000	14.9613
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	2.1	0.4263	0.0252	0.0000	1.0561
Total		6.4653	0.3821	0.0000	16.0174

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8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
High Turnover (Sit Down Restaurant)	7.4375	1.5098	0.0892	0.0000	3.7403
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0.525	0.1066	6.3000e-003	0.0000	0.2640
Total		1.6163	0.0955	0.0000	4.0044

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

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Equipment Type	Number
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11.0 Vegetation

Appendix C:

Screening Tables for Gasoline Dispensing Facilities & CARB 2005 Air Quality and
Land Use Handbook Table 1-1

SCAQMD PERMIT APPLICATION PACKAGE "N"
 Tables Effective for Applications Deemed Complete On or After October 1, 2017

Table 12.1A – Screening Tables for Gasoline Dispensing Facilities

Underground Storage Tank (UST)

Station Abbr.	Location	Downwind Distance (meters)							
		25	50	75	100	200	300	500	1000
AZUS	Azusa	2.884	1.040	0.550	0.340	0.093	0.045	0.018	0.006
BNAP	Banning	4.208	1.703	0.940	0.603	0.186	0.093	0.039	0.013
CELA	Central L.A.	2.484	0.876	0.455	0.287	0.085	0.041	0.017	0.005
			1.075	0.558	0.347	0.103	0.051	0.021	0.007
FONT	Fontana	3.306	1.254	0.677	0.423	0.124	0.060	0.025	0.007
MSVJ	Mission Viejo	2.721	0.981	0.515	0.319	0.094	0.047	0.018	0.006
PICO	Pico Rivera	2.629	0.956	0.509	0.316	0.091	0.044	0.018	0.005
RDLD	Redlands	3.562	1.325	0.691	0.418	0.113	0.055	0.024	0.007
UPLA	Upland	3.108	1.133	0.609	0.384	0.111	0.054	0.022	0.007
KBUR	Burbank Airport	3.097	1.198	0.655	0.410	0.125	0.062	0.026	0.008
KCNO	Chino Airport.	4.084	1.609	0.870	0.549	0.166	0.082	0.033	0.010
KCQT	USC/Downtown L.A.	3.382	1.244	0.656	0.407	0.110	0.052	0.021	0.007
KFUL	Fullerton Airport	2.726	1.027	0.553	0.348	0.104	0.052	0.021	0.007
KHHR	Hawthorne Airport	3.225	1.197	0.640	0.405	0.123	0.061	0.025	0.007
KLAX	Los Angeles Int'l Airport	4.456	1.830	1.010	0.648	0.204	0.102	0.044	0.013
KLGB	Long Beach Airport	3.417	1.394	0.764	0.488	0.151	0.076	0.033	0.010
KONT	Ontario Airport	4.834	2.006	1.111	0.710	0.222	0.112	0.047	0.015
KPSP	Palm Springs Airport	3.363	1.352	0.736	0.467	0.144	0.073	0.031	0.010
KRAL	Riverside Airport	4.141	1.678	0.922	0.588	0.177	0.088	0.038	0.013
KSMO	Santa Monica Airport	3.444	1.336	0.731	0.462	0.139	0.068	0.028	0.008
KSNA	John Wayne Int'l Airport	4.041	1.605	0.870	0.549	0.164	0.079	0.032	0.010
KTRM	Desert Hot Springs Airport	3.820	1.553	0.848	0.540	0.163	0.082	0.035	0.010
KVNY	Van Nuys Airport	2.909	1.132	0.608	0.378	0.111	0.055	0.022	0.007

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

SCAQMD PERMIT APPLICATION PACKAGE “N”
 Tables Effective for Applications Deemed Complete On or After October 1, 2017

Table 12.2A – Screening Tables for Gasoline Dispensing Facilities

Aboveground Storage Tank (AST)

Station Abbr.	Location	Downwind Distance (meters)							
		25	50	75	100	200	300	500	1000
AZUS	Azusa	4.447	1.603	0.827	0.496	0.114	0.050	0.020	0.006
BNAP	Banning	5.469	2.176	1.185	0.748	0.210	0.101	0.042	0.013
CELA	Central L.A.	3.610	1.258	0.641	0.392	0.100	0.046	0.019	0.006
ELSI	Lake Elsinore	4.056	1.458	0.748	0.452	0.119	0.057	0.024	0.008
FONT	Fontana	4.812	1.787	0.940	0.569	0.145	0.067	0.027	0.008
MSVJ	Mission Viejo	3.600	1.276	0.650	0.395	0.108	0.052	0.021	0.007
PERI	Perris	4.639	1.733	0.904	0.558	0.144	0.069	0.029	0.009
PICO	Pico Rivera	3.720	1.342	0.699	0.421	0.106	0.049	0.019	0.006
RDLD	Redlands	5.809	2.218	1.154	0.685	0.132	0.062	0.026	0.008
UPLA	Upland	4.693	1.677	0.871	0.532	0.130	0.060	0.025	0.008
KBUR	Burbank Airport	3.940	1.493	0.808	0.493	0.139	0.069	0.028	0.008
KCNO	Chino Airport.	4.971	1.950	1.047	0.658	0.188	0.091	0.037	0.011
KCQT	USC/Downtown L.A.	5.393	1.959	1.002	0.604	0.133	0.058	0.024	0.007
KFUL	Fullerton Airport	3.614	1.336	0.699	0.429	0.118	0.058	0.024	0.007
KHHR	Hawthorne Airport	4.415	1.593	0.837	0.511	0.140	0.067	0.027	0.008
KLAX	Los Angeles Int'l Airport	5.624	2.316	1.257	0.794	0.227	0.111	0.047	0.015
KLGB	Long Beach Airport	4.450	1.829	0.993	0.621	0.172	0.083	0.035	0.011
KONT	Ontario Airport	5.990	2.494	1.370	0.862	0.249	0.121	0.051	0.017
KPSP	Palm Springs Airport	4.148	1.691	0.915	0.573	0.163	0.080	0.034	0.010
KRAL	Riverside Airport	5.770	2.318	1.244	0.776	0.202	0.096	0.041	0.013
KSMO	Santa Monica Airport	4.771	1.829	0.977	0.596	0.159	0.074	0.031	0.009
KSNA	John Wayne Int'l Airport	5.072	2.017	1.085	0.674	0.186	0.088	0.036	0.010
KTRM	Desert Hot Springs Airport	4.681	1.917	1.040	0.660	0.183	0.091	0.039	0.012
KVNY	Van Nuys Airport	3.673	1.428	0.760	0.467	0.127	0.060	0.025	0.008

Table 1-1
Recommendations on Siting New Sensitive Land Uses
Such As Residences, Schools, Daycare Centers, Playgrounds, or Medical
Facilities*

Source Category	Advisory Recommendations
Freeways and High-Traffic Roads	<ul style="list-style-type: none"> • Avoid siting new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day.
Distribution Centers	<ul style="list-style-type: none"> • Avoid siting new sensitive land uses within 1,000 feet of a distribution center (that accommodates more than 100 trucks per day, more than 40 trucks with operating transport refrigeration units (TRUs) per day, or where TRU unit operations exceed 300 hours per week). • Take into account the configuration of existing distribution centers and avoid locating residences and other new sensitive land uses near entry and exit points.
Rail Yards	<ul style="list-style-type: none"> • Avoid siting new sensitive land uses within 1,000 feet of a major service and maintenance rail yard. • Within one mile of a rail yard, consider possible siting limitations and mitigation approaches.
Ports	<ul style="list-style-type: none"> • Avoid siting of new sensitive land uses immediately downwind of ports in the most heavily impacted zones. Consult local air districts or the ARB on the status of pending analyses of health risks.
Refineries	<ul style="list-style-type: none"> • Avoid siting new sensitive land uses immediately downwind of petroleum refineries. Consult with local air districts and other local agencies to determine an appropriate separation.
Chrome Platers	<ul style="list-style-type: none"> • Avoid siting new sensitive land uses within 1,000 feet of a chrome plater.
Dry Cleaners Using Perchloro-ethylene	<ul style="list-style-type: none"> • Avoid siting new sensitive land uses within 300 feet of any dry cleaning operation. For operations with two or more machines, provide 500 feet. For operations with 3 or more machines, consult with the local air district. • Do not site new sensitive land uses in the same building with perc dry cleaning operations.
Gasoline Dispensing Facilities	<ul style="list-style-type: none"> • Avoid siting new sensitive land uses within 300 feet of a large gas station (defined as a facility with a throughput of 3.6 million gallons per year or greater). A 50 foot separation is recommended for typical gas dispensing facilities.

***Notes:**

- These recommendations are advisory. Land use agencies have to balance other considerations, including housing and transportation needs, economic development priorities, and other quality of life issues.

- Recommendations are based primarily on data showing that the air pollution exposures addressed here (i.e., localized) can be reduced as much as 80% with the recommended separation.
- The relative risk for these categories varies greatly (see Table 1-2). To determine the actual risk near a particular facility, a site-specific analysis would be required. Risk from diesel PM will decrease over time as cleaner technology phases in.
- These recommendations are designed to fill a gap where information about existing facilities may not be readily available and are not designed to substitute for more specific information if it exists. The recommended distances take into account other factors in addition to available health risk data (see individual category descriptions).
- Site-specific project design improvements may help reduce air pollution exposures and should also be considered when siting new sensitive land uses.
- This table does not imply that mixed residential and commercial development in general is incompatible. Rather it focuses on known problems like dry cleaners using perchloroethylene that can be addressed with reasonable preventative actions.
- A summary of the basis for the distance recommendations can be found in Table 1-2.

Appendix B - Biological Resources and MSHCP Compliance



September 3, 2020

HEADY DESIGN GROUP

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SUBJECT: Biological Resources Assessment and Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) Consistency Analysis for the Redlands Alessandro Commercial Plaza Located in the City of Moreno Valley, Riverside County, California

Introduction

This report contains the findings of ELMT Consulting’s (ELMT) Biological Resources Assessment and Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) consistency analysis for the Redlands Alessandro Commercial Plaza located in the City of Moreno Valley, Riverside County, California (Project). The report was prepared to document baseline conditions and assess the potential for special-status¹ plant and wildlife species to occur within the proposed project site that could pose a constraint to implementation of the proposed project. Special attention was given to the suitability of the onsite habitat to support special-status species identified by the California Department of Fish and Wildlife’s (CDFW) California Natural Diversity Database (CNDDDB) and other electronic databases as potentially occurring in the general vicinity of the project. Additionally, the report also addresses resources protected under the Migratory Bird Treaty Act (MBTA), federal Clean Water Act (CWA) regulated by the U.S. Army Corps of Engineers (USACE) and Regional Water Quality Control Board (RWQCB) respectively; and Section 1602 of the California Fish and Game Code (FGC) administered by CDFW.

The City of Moreno Valley is a signatory to the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP). The MSHCP requires that a project comply with the MSHCP rules and regulations set forth in the MSHCP. Therefore, the Project site was also evaluated for consistency with the MSHCP.

Project Location

The project site is generally located east of Interstate 215, south of State Route 60, west of Gilman Springs Road, and north of Mount Russel in the City of Moreno Valley, Riverside County, California. The project site is depicted on the *Sunnymead* quadrangle of the United State Geological Survey’s (USGS) 7.5-minute

¹ As used in this report, “special-status” refers to plant and wildlife species that are federally, State, and MSHCP listed, proposed, or candidates; plant species that have been designated with a California Native Plant Society Rare Plant Rank; wildlife species that are designated by the CDFW as fully protected, species of special concern, or watch list species; and specially protected natural vegetation communities as designated by the CDFW.

topographic map within Section 13 of Township 3 South, Range 3 West. Specifically, the project site is located on the southeast corner of the intersection of Redlands Boulevard and Alessandro Boulevard within Assessor Parcel Numbers (APNs) 478-430-029, -030, and -031. Refer to Exhibits 1- 3 in Attachment A.

Project Description

The project (PEN19-0057, Master Plot Plan for a multi-tenant building and gas station) proposes the construction of a 1,920 square foot commercial building, a 2,580 square foot restaurant, and a gas station with eight fueling stations adjacent to an existing market that will be incorporated into the overall project. The site is currently zoned as Village Commercial (VC) and classified as Commercial Land Use in the City of Moreno Valley General Plan Land Use Map. The project site is currently partially occupied by an existing market which will remain and is incorporated into the project site plan. The proposed project land use is permitted in the zone and does not require a zone change or General Plan amendment. Refer to Attachment B, *Site Plan*.

Methodology

Prior to conducting the field investigation, species and habitat information was gathered from the reports related to the specific project and relevant databases for the *Sunnymead* USGS quadrangle to determine which species and/or habitats would be expected to occur onsite. These sources include:

- California Native Plant Society Electronic Inventory (CNPSEI) database;
- California Natural Diversity Database (CNDDDB) *Rarefind 5*;
- CNDDDB Biogeographic Information and Observation System (BIOS);
- Environmental Protection Agency (EPA) Water Program “My Waters” data layers
- Google Earth Pro historic aerial imagery (1996-2018);
- Stephen’s Kangaroo Rat Habitat Conservation Plan
- United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS), Web Soil Survey;
- United States Fish and Wildlife Service (USFWS) Critical Habitat designations for Threatened and Endangered Species;
- USFWS National Wetlands Inventory (NWI);
- Western Riverside County Regional Conservation Authority (RCA) MSHCP Information Map; and
- 2006 Burrowing Owl Survey Instructions for the Western Riverside Multiple Species Habitat Conservation Plan Area.

The literature review provided a baseline from which to inventory the biological resources potentially occurring on the project site. The CNDDDB database was used, in conjunction with ArcGIS software, to locate the nearest recorded occurrences of special-status species and determine the distance from the project.

Field Investigation

Following the literature review, biologist Jacob H. Lloyd Davies inventoried and evaluated the condition of the habitat within the project site on August 5, 2020. Plant communities identified on aerial photographs during the literature review were verified by walking meandering transects through the plant communities and along boundaries between plant communities.

All plant and wildlife species observed, as well as dominant plant species within each plant community, were recorded. Plant species observed during the field survey were identified by visual characteristics and morphology in the field. Unusual and less familiar plant species were photographed during the field survey and identified in the laboratory using taxonomical guides. Wildlife detections were made through observation of scat, trails, tracks, burrows, nests, and/or visual and aural observation. In addition, site characteristics such as soil condition, topography, hydrology, anthropogenic disturbances, indicator species, condition of onsite plant communities, and presence of potential jurisdictional drainage and/or wetland features were noted.

No limitations significantly affected the results and conclusions given herein. Surveys were conducted during the appropriate season to observe the target species, in good weather conditions, by a qualified biologist who followed all pertinent protocols.

Existing Site Condition

The project site is comprised of three parcels for a total of 1.7 acres and completely surrounded by existing residential and commercial development. The site currently supports an existing market and parking lot on its western half, and undeveloped/vacant land on its eastern half.

Topography and Soils

Elevation on the project site ranges from approximately 1,594 to 1,604 feet above mean sea level, is generally flat with no areas of significant topographic relief, and slopes gently away from the center. Based on the NRCS USDA Web Soil Survey, the project site is underlain by San Emigdio loam (0 to 2 percent slopes) and San Emigdio loam (2 to 8 percent slopes). Soils onsite have been mechanically disturbed and heavily compacted from previous anthropogenic disturbances (i.e., grading activities, weed abatement activities, and onsite and surrounding development). Refer to Exhibit 4, *Soils*, in Attachment A.

Vegetation

Due to existing and historical land uses, no native plant communities or natural communities of special concern were observed on or immediately adjacent to the project site. The project site consists of segregated portions of developed and undeveloped, vacant land that have been subject to a variety of anthropogenic disturbances and is surrounded by existing development on all sides. The project site does not support any vegetation communities, but rather supports land cover types that would be classified as developed and disturbed (refer to Exhibit 5, *Vegetation*, in Attachment A). Refer to Attachment C, *Site Photographs*, for representative photographs of the project site. No native plant communities will be impacted from implementation of the proposed project.

The disturbed portions of the project site were dominated by early successional and non-native weedy plant species as a result of weed abatement activities and adjacent development. This area is composed primarily of non-native forbs such as puncture vine (*Tribulus terrestris*) and silverleaf nightshade (*Solanum elaeagnifolium*). Other common species observed in the disturbed areas include doveweed (*Croton setiger*), flax-leaved horseweed (*Erigeron bonariensis*), tumbleweed (*Amaranthus album*), Russian thistle (*Salsola tragus*), and spurge (*Euphorbia* sp.). The developed portion of the project site supported exclusively non-native ornamental and landscaped plant species.

Wildlife

The project site provides a limited amount of habitat for a few reptile species adapted to a high degree of anthropogenic disturbances. Bird species detected during the field survey included house finch (*Haemorhous mexicanus*), and mourning dove (*Zenaida macroura*). Common side-blotched lizard (*Uta stansburiana elegans*) was the only reptilian species observed during the field investigation. No fish, amphibian, or mammal species were observed during the field investigation.

Nesting Birds and Raptors

No active nests or birds displaying nesting behavior were observed onsite during the field survey. Although heavily disturbed, the project has the potential to provide minimal foraging and nesting habitat for year-round and seasonal avian residents, as well as migrating songbirds that could occur in the area that area adapted to disturbed areas and urban environments. Additionally, the disturbed areas on the project site have the potential to support ground-nesting birds such as killdeer (*Charadrius vociferus*). The ornamental trees on and within 500 feet of the project site also have the potential to provide avian nesting opportunities.

Migratory Corridors and Linkages

Habitat linkages provide connections between larger habitat areas that are separated by development. Wildlife corridors are similar to linkages but provide specific opportunities for animals to disperse or migrate between areas. A corridor can be defined as a linear landscape feature of sufficient width to allow animal movement between two comparatively undisturbed habitat fragments. Adequate cover is essential for a corridor to function as a wildlife movement area. It is possible for a habitat corridor to be adequate for one species yet still inadequate for others. Wildlife corridors are features that allow for the dispersal, seasonal migration, breeding, and foraging of a variety of wildlife species. Additionally, open space can provide a buffer against both human disturbance and natural fluctuations in resources.

The project site has not been identified as occurring in a wildlife corridor or linkage. The proposed project will be confined to existing areas that have been heavily disturbed or developed, are isolated from regional wildlife corridors and linkages, and there are no riparian corridors, creeks, or useful patches of stepping stone habitat (natural areas) within or connecting the improvement areas to a recognized wildlife corridor or linkage. As such, implementation of the proposed project is not expected to impact wildlife movement opportunities. Therefore, impacts to wildlife corridors or linkages are not expected to occur.

Jurisdictional Areas

There are three key agencies that regulate activities within inland streams, wetlands, and riparian areas in California. The USACE Regulatory Branch regulates discharge of dredge or fill materials into “waters of the United States” pursuant to Section 404 of the Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act. Of the State agencies, the CDFW regulates alterations to streambed and bank under Fish and Wildlife Code Sections 1600 et seq., and the RWQCB regulates discharges into surface waters pursuant to Section 401 of the CWA and the California Porter-Cologne Water Quality Control Act.

No jurisdictional drainage and/or wetland features were observed on the project site during the field investigation. Further, no blueline streams have been recorded on the project site. Therefore, development of the project will not result in impacts to Corps, Regional Board, or CDFW jurisdiction and regulatory approvals will not be required.

Special-Status Biological Resources

The CNDDDB was queried for reported locations of special-status plant and wildlife species as well as natural communities of special concern in the *Sunnymead* USGS 7.5-minute quadrangle. Special-status plant and wildlife species were evaluated for their potential to occur within the project site based on habitat requirements, availability, and quality of suitable habitat, and known distributions. Species determined to have the potential to occur within the general vicinity are provided in Attachment D, *Potentially Occurring Special-Status Biological Resources*.

Special-Status Plants

According to the CNDDDB and CNPS, fourteen (14) special-status plant species have been recorded in the *Sunnymead* quadrangle (refer to Attachment D). The project site consists of heavily disturbed and developed land that have been subject to a variety of anthropogenic disturbances from grading/disking activities and activities associated with surrounding development. These disturbances have resulted in the project site being dominated by early successional and non-native vegetation, which has reduced, if not eliminated, the ability of the project site to provide suitable habitat for special-status plant species. Although the field investigation was not conducted during the blooming season for the majority of the special-status plant species known to occur in the general vicinity of the project site, based on habitat requirements for specific special-status plant species and the availability and quality of habitats needed by each species, it was determined that the project site does not provide suitable habitat for special-status species known to occur in the area and are presumed absent.

Special-Status Wildlife

According to the CNDDDB, sixty-eight (68) special-status wildlife species have been reported in the *Sunnymead* quadrangle (refer to Attachment D). No special-status wildlife species were observed onsite during the habitat assessment. Based on habitat requirements for specific species and the availability and quality of onsite habitats, it was determined that the proposed project site has a low potential to provide minimal foraging opportunities for Cooper’s hawk (*Accipiter cooperii*) and sharp-shinned hawk (*Accipiter striatus*). Further it was determined that the project site does not provide suitable habitat for any of the other

special-status wildlife species known to occur in the area since the project site has been heavily disturbed from onsite disturbances and surrounding development.

Special-Status Plant Communities

The CNDDDB lists one (1) special-status habitats as being identified within the *Sunnymead* quadrangle: Southern Sycamore Alder Riparian Woodland, which does not occur within the project site. No CDFW special-status plant communities occur within the boundaries of the project site.

Critical Habitat

Under the federal Endangered Species Act, “Critical Habitat” is designated at the time of listing of a species or within one year of listing. Critical Habitat refers to specific areas within the geographical range of a species at the time it is listed that include the physical or biological features that are essential to the survival and eventual recovery of that species. Maintenance of these physical and biological features requires special management considerations or protection, regardless of whether individuals or the species are present or not. All federal agencies are required to consult with the United States Fish and Wildlife Service (USFWS) regarding activities they authorize, fund, or permit which may affect a federally listed species or its designated Critical Habitat. The purpose of the consultation is to ensure that projects will not jeopardize the continued existence of the listed species or adversely modify or destroy its designated Critical Habitat. The designation of Critical Habitat does not affect private landowners, unless a project they are proposing is on federal lands, uses federal funds, or requires federal authorization or permits (e.g., funding from the Federal Highways Administration or a CWA Permit from the Corps). If there is a federal nexus, then the federal agency that is responsible for providing the funding or permit would consult with the USFWS.

The project site is not located with federally designated Critical Habitat (refer to Exhibit 6, *Critical Habitat*, in Attachment A). The closest federally designated Critical Habitat is located approximately 3.4 miles south of the project site for spreading navarretia (*Navarretia fossalis*) and 4.6 miles south of the project site for three-leaved brodiaea (*Brodiaea filifolia*). Therefore, the loss or adverse modification of Critical Habitat will not occur as a result of the proposed project and consultation with the USFWS will not be required for implementation of the proposed project.

Stephen’s Kangaroo Rat Habitat Conservation Plan

Separate from the consistency review against the policies of the MSHCP, Riverside County established a boundary in 1996 for protecting the Stephens’ kangaroo rat (*Dipodomys stephensi*), a federally endangered and state threatened species. The Stephens’ kangaroo rat is protected under the Stephens’ Kangaroo Rat Habitat Conservation Plan (County Ordinance No. 663.10; SKR HCP). As described in the MSHCP Implementation Agreement, a Section 10(a) Permit, and California Fish and Game Code Section 2081 Management Authorization were issued to the Riverside County Habitat Conservation Agency (RCHCA) for the Long-Term SKR HCP and was approved by the USFWS and CDFW in August 1990 (RCHCA 1996). Relevant terms of the SKR HCP have been incorporated into the MSHCP and its Implementation Agreement. The SKR HCP will continue to be implemented as a separate HCP; however, to provide the greatest conservation for the largest number of Covered Species, the Core Reserves established by the SKR HCP are managed as part of the MSHCP Conservation Area consistent with the SKR HCP. Actions shall not be taken as part of the implementation of the SKR HCP that will significantly affect other Covered

Species. Take of Stephens' kangaroo rat outside of the boundaries but within the MSHCP area is authorized under the MSHCP and the associated permits.

The project site is located within the Mitigation Fee Area of the SKR HCP. Therefore, the applicant will be required to pay the SKR HCP Mitigation Fee prior to development of the project site.

Western Riverside County MSHCP

The project site is located within the Reche Canyon/Badlands Area Plan of the MSHCP, but is not located within any Criteria Cells or MSHCP Conservation Areas (refer to Exhibit 7, *MSHCP Criteria Area*, in Attachment A). Additionally, the project site is not located within any of the following designated species survey areas as identified by the Riverside Conservation Authority Information Map:

- | | |
|-------------------------|--|
| • Amphibian | Not in an amphibian survey area |
| • Owls | Not in an owl survey area |
| • Criteria Area Species | Not in a criteria area species survey area |
| • Mammals | Not in a mammal survey area |
| • Narrow Endemic Plants | Not in a narrow endemic plant survey area |

Since the City of Moreno Valley is a permittee under the MSHCP and, while the project is not specifically identified as a Covered Activity under Section 7.1 of the MSHCP, public and private development that are outside of Criteria Areas and Public/Quasi-Public (PQP) Lands are permitted under the MSHCP, subject to consistency with MSHCP policies that apply to area outside of Criteria Areas. As such, to achieve coverage, the project must be consistent with the following policies of the MSHCP:

Riparian/Riverine Areas and Vernal Pools

The MSHCP requires that an assessment be completed if impacts to riparian/riverine areas and vernal pools could occur from construction of the proposed project. According to the MSHCP, the documentation for the assessment shall include mapping and a description of the functions and values of the mapped areas with respect to the species listed in Section 6.1.2 of the MSHCP, *Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools*.

Riparian/Riverine Areas

As identified in Section 6.1.2 of the MSHCP, *Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools*, riparian/riverine areas are defined as areas dominated by trees, shrubs, persistent emergent plants, or emergent mosses and lichens which occur close to or are dependent upon nearby freshwater, or areas with freshwater flowing during all or a portion of the year. Conservation of these areas is intended to protect habitat that is essential to a number of listed or special-status water-dependent fish, amphibian, avian, and plant species. If impacts to riparian/riverine habitat cannot be avoided, a Determination of Biologically Equivalent or Superior Preservation (DBESP) must be developed to address the replacement of lost functions of habitats in regards to the listed species. This assessment is independent from considerations given to “waters of the U.S.” and “waters of the State” under the CWA and the California Fish and Game Code.

No riparian/riverine features were observed within the project site during the field investigation. Therefore, development of the proposed project will not result in impacts to riparian/riverine habitats and a DBESP will not be required for the loss of riparian/riverine habitat from development of the proposed project.

Vernal Pools and Fairy Shrimp Habitat

One of the factors for determining the suitability of the habitat for fairy shrimp would be demonstrable evidence of seasonal ponding in an area of topographic depression that is not subject to flowing waters. These astatic pools are typically characterized as vernal pools. More specifically, vernal pools are seasonal wetlands that occur in depression areas without a continual source of water. They have wetland indicators of all 3 parameters (soils, vegetation, and hydrology) during the wetter portion of the growing season but normally lack wetland indicators of hydrology and/or vegetation during the drier portion of the growing season. Obligate hydrophytes and facultative wetlands plant species are normally dominant during the wetter portion of the growing season. The determination that an area exhibits vernal pool characteristics and the definition of the watershed supporting vernal pool hydrology is made on a case-by-case basis. Such determinations should consider the length of time the areas exhibit upland and wetland characteristics and the manner in which the area fits into the overall ecological system as a wetland. The seasonal hydrology of vernal pools provides for a unique environment, which supports plants and invertebrates specifically adapted to a regime of winter inundation, followed by an extended period when the pool soils are dry.

Vernal pools are seasonally inundated, ponded areas that only form in regions where specialized soil and climatic conditions exist. During fall and winter rains typical of Mediterranean climates, water collects in shallow depressions where downward percolation of water is prevented by the presence of a hard pan or clay pan layer (duripan) below the soil surface. Later in the spring when rains decrease and the weather warms, the water evaporates, and the pools generally disappear by May. The shallow depressions remain relatively dry until late fall and early winter with the advent of greater precipitation and cooler temperatures. Vernal pools provide unusual "flood and drought" habitat conditions to which certain plant and wildlife species have specifically adapted as well as invertebrate species such as fairy shrimp.

The MSHCP lists two general classes of soils known to be associated with listed and special-status plant species: clay soils and Traver-Domino Willow association soils. The specific clay soils known to be associated with listed and special-status species within the MSHCP plan area include Bosanko, Auld, Altamont, and Porterville series soils, whereas Traver-Domino Willows association includes saline-alkali soils largely located along floodplain areas of the San Jacinto River and Salt Creek. Without the appropriate soils to create the impermeable restrictive layer, none of the special-status plant or wildlife species associated with vernal pools can occur on the project site. None of these soils have been documented within the project site.

A review of recent and historic aerial photographs (1996-2018) of the project site did not provide visual evidence of an astatic or vernal pool conditions within the project site. No ponding was observed during the field investigation, further supporting the fact that the drainage patterns currently occurring on the project site do not follow hydrologic regime needed for vernal pools. From this review of historic aerial photographs and observations during the field investigations, it can be concluded that there is no indication of vernal pools or suitable fairy shrimp habitat occurring within the proposed project site.

Narrow Endemic Plant Species

In accordance with Section 6.1.3 of the MSHCP, *Protection of Narrow Endemic Plant Species*, additional surveys may be needed to gather information to determine the presence/absence of these species to ensure that appropriate conservation of these species occurs. Based on the RCA MSHCP Information Map query, it was determined that the project site is not located within the designated survey area for Narrow Endemic Plant Species.

Additional Survey Needs and Procedures

In accordance with Section 6.3.2 of the MSHCP, *Additional Survey Needs and Procedures*, additional surveys may be needed for certain species in order to achieve coverage for these species. The query of the RCA MSHCP Information Map determined that the project site is not located within any designated survey areas for the species listed under Section 6.3.2 of the MSHCP.

Urban/Wildlands Interface Guidelines

Section 6.1.4 of the MSHCP, *Guidelines Pertaining to Urban/Wildlands Interface*, is intended to address indirect effects associated with development in proximity to MSHCP Conservation Areas. The Urban/Wildlife Interface Guidelines are intended to ensure that indirect project-related impacts to the MSHCP Conservation Area, including drainage, toxics, lighting, noise, invasive plant species, barriers, and grading/land development, are avoided or minimized.

The project site is not located within or immediately adjacent to any Criteria Cells, corridors, or linkages. Therefore, the urban/Wildlands Interface Guidelines do not apply to this project.

Conclusion and Recommendations

Based on the literature review and field survey, implementation of the project will have no significant impacts on federally, State, or MSHCP listed species known to occur in the general vicinity of the project site. Additionally, the project will have no effect on designated Critical Habitat because none exists within the area.

There are no jurisdictional drainages onsite.

The project site is not located within or adjacent to any criteria cell. No riverine/riparian resources or vernal pools were found onsite, and is therefore consistent with Section 6.1.2 of the MSHCP. The project site is not located within any special species areas for amphibians, mammals, burrowing owl, narrow endemic plants, or criteria area plants. The site is designated as urbanized and developed. Therefore, the project will not impact MSHCP sensitive resources.

The project site is located within the Mitigation Fee Area of the SKR HCP. Therefore, the applicant will be required to pay the SKR HCP Mitigation Fee prior to development of the project site

The project site has the potential to support suitable habitat for foraging and nesting birds, which are protected by the MBTA and FGC. To avoid potential impacts to nesting birds, the following is recommended.

- If construction occurs between February 1st and August 31st, a pre-construction clearance survey for nesting birds should be conducted within ten (10) days of the start of any vegetation removal or ground disturbing activities to ensure that no nesting birds will be disturbed during construction. The biologist conducting the clearance survey should document a negative survey with a brief letter report indicating that no impacts to active avian nests will occur. If an active avian nest is discovered during the pre-construction clearance survey, construction activities should stay outside of a no-disturbance buffer. The size of the no-disturbance buffer will be determined by the wildlife biologist and will depend on the level of noise and/or surrounding anthropogenic disturbances, line of sight between the nest and the construction activity, type and duration of construction activity, ambient noise, species habituation, and topographical barriers. These factors will be evaluated on a case-by-case basis when developing buffer distances. Limits of construction to avoid an active nest will be established in the field with flagging, fencing, or other appropriate barriers; and construction personnel will be instructed on the sensitivity of nest areas. A biological monitor should be present to delineate the boundaries of the buffer area and to monitor the active nest to ensure that nesting behavior is not adversely affected by the construction activity. Once the young have fledged and left the nest, or the nest otherwise becomes inactive under natural conditions, construction activities within the buffer area can occur.

With completion of the recommendations provided in this report and payment of the MSHCP mitigation fee, implementation of the proposed project will be fully consistent with the Western Riverside County MSHCP.

Please do not hesitate to contact Travis McGill at (909) 816-1646 or travismcgill@elmtconsulting.com should you have any questions regarding this project.

Sincerely,



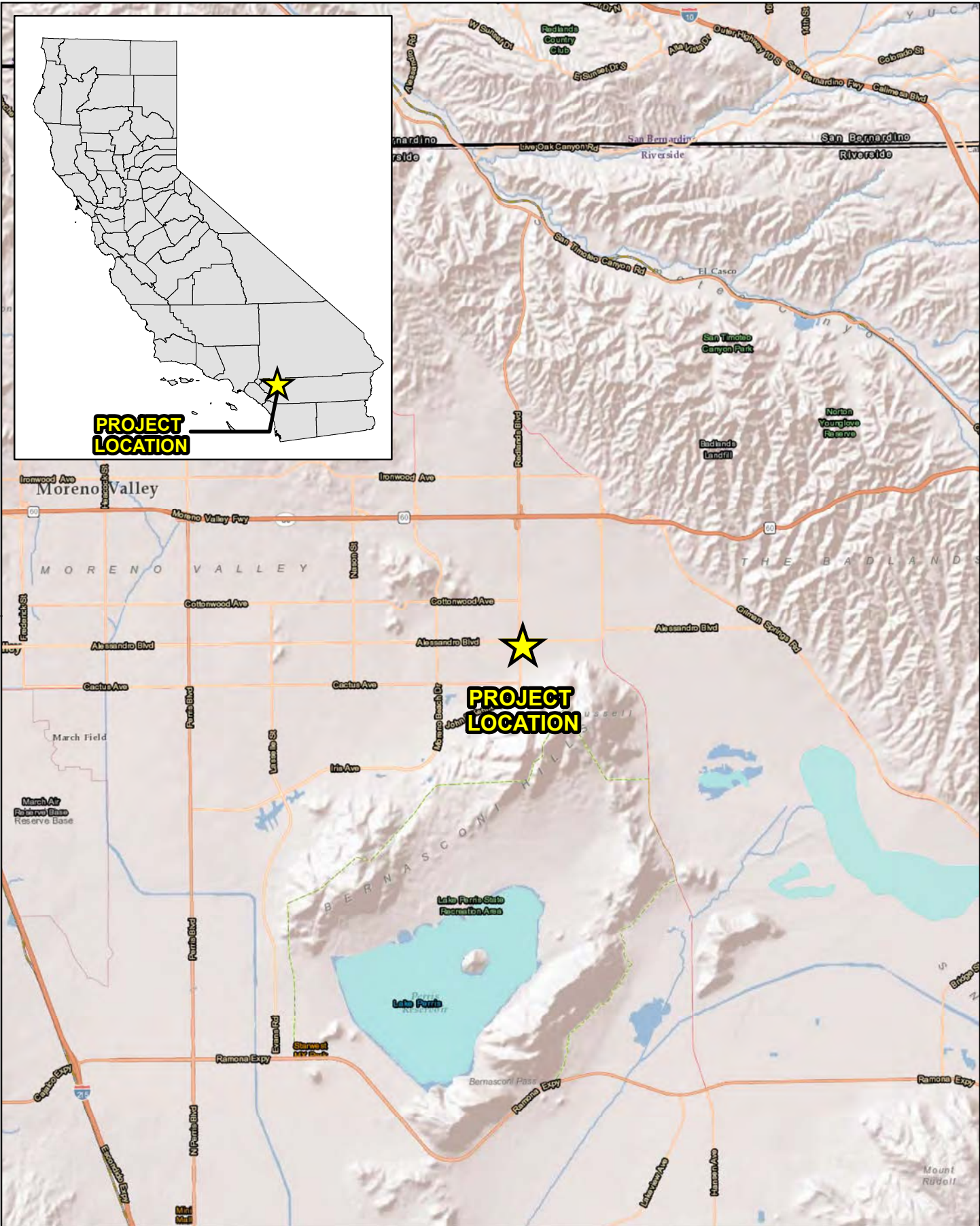
Travis J. McGill
 Director

Attachments:

- Project Exhibits*
- Site Plan*
- Site Photographs*
- Potentially Occurring Special-Status Biological Resources*
- Regulations*

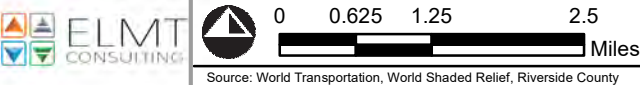
Attachment A

Project Exhibits

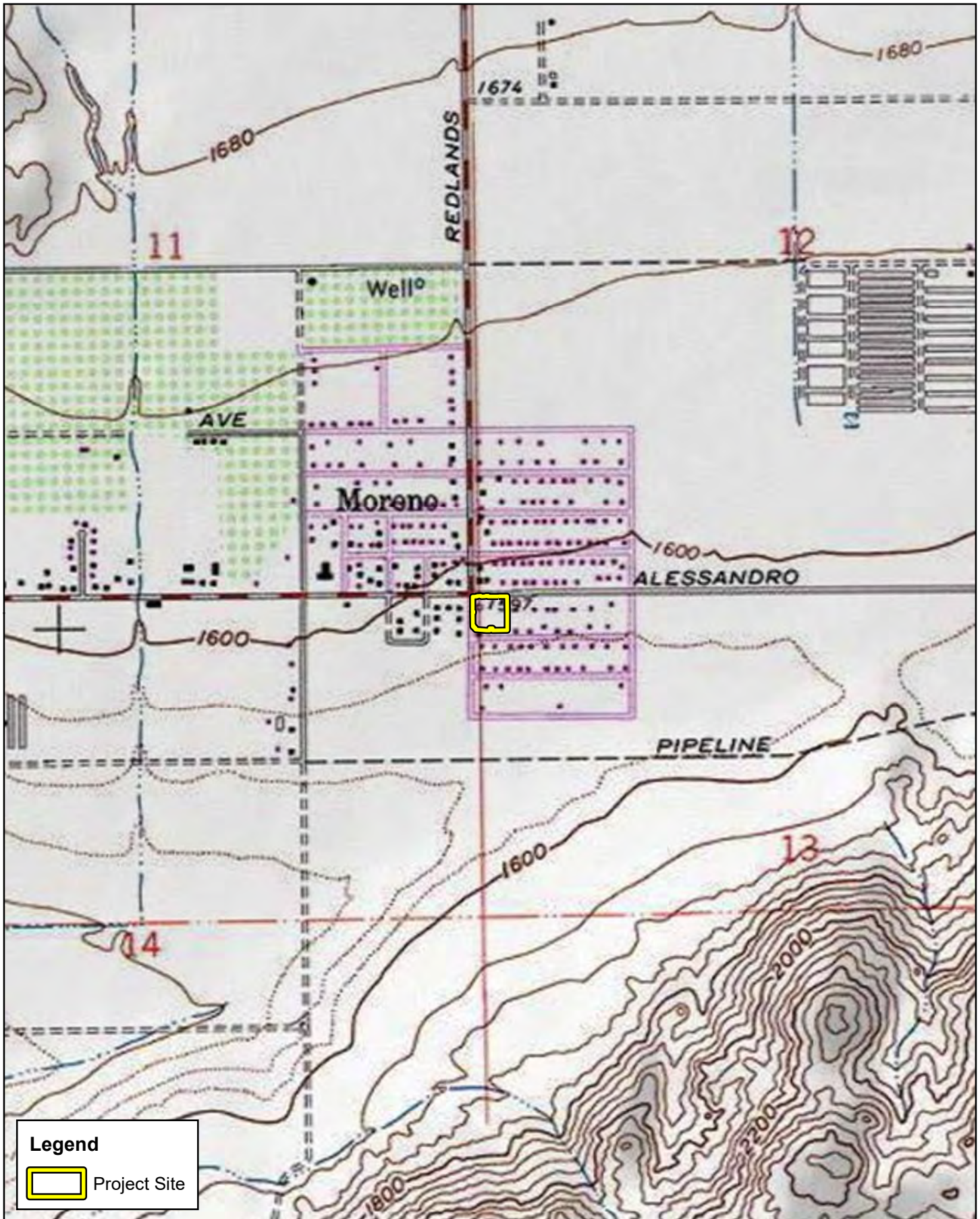


Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

SOUTHEAST CORNER OF REDLANDS AVENUE AND ALESSANDRO BOULEVARD
HABITAT ASSESSMENT AND MSHCP CONSISTENCY ANALYSIS



Regional Vicinity



Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

SOUTHEAST CORNER OF REDLANDS AVENUE AND ALESSANDRO BOULEVARD
HABITAT ASSESSMENT AND MSHCP CONSISTENCY ANALYSIS

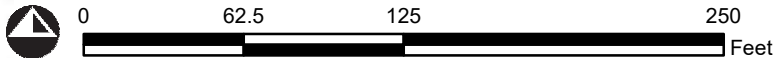


Site Vicinity



Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

SOUTHEAST CORNER OF REDLANDS AVENUE AND ALESSANDRO BOULEVARD
HABITAT ASSESSMENT AND MSHCP CONSISTENCY ANALYSIS






Source: ESRI Aerial Imagery, World Transportation, Riverside County

Project Site

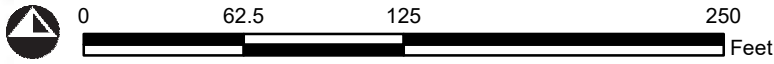


Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Legend

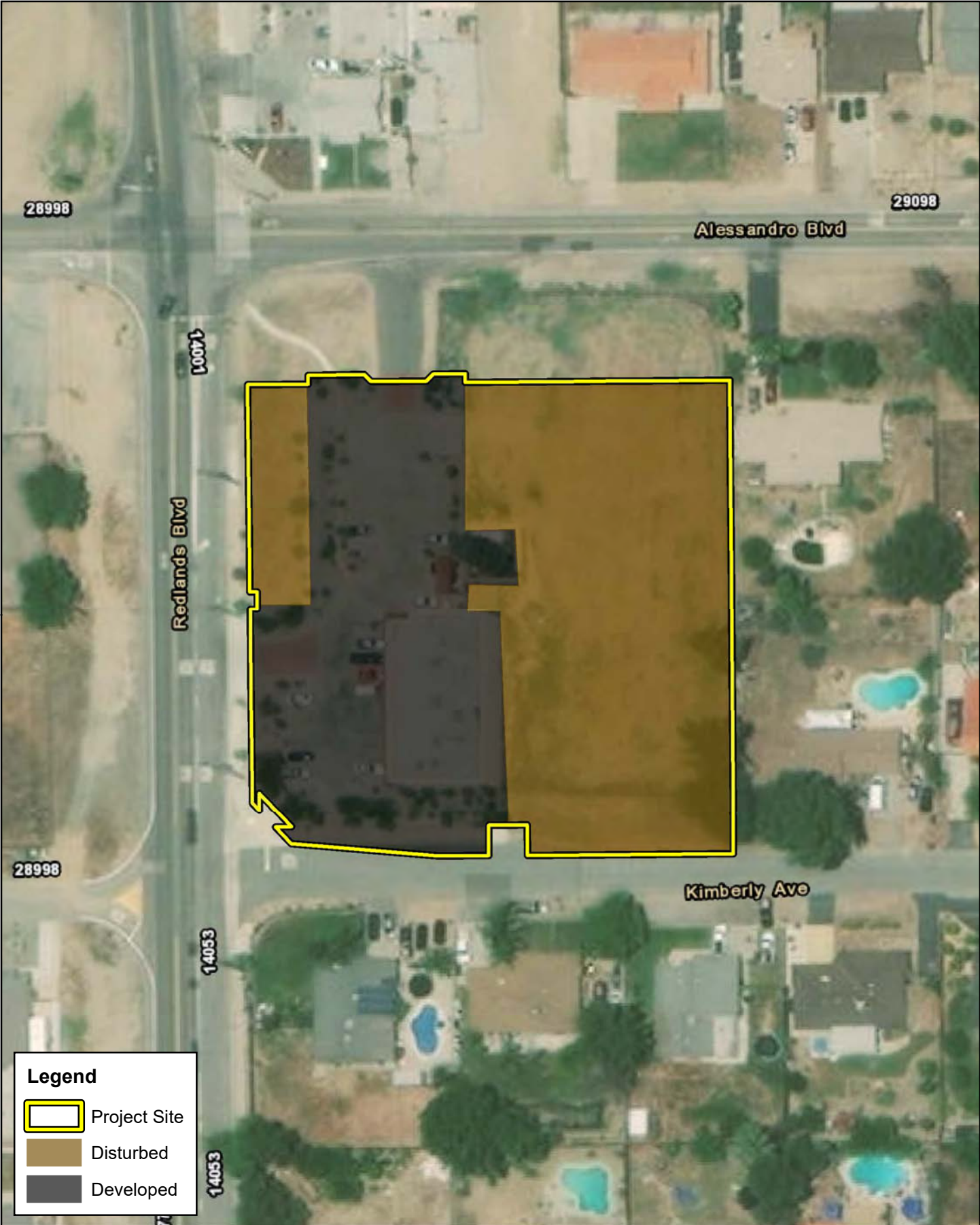
-  Project Site
-  San Emigdio loam, 0 to 2 percent slopes (SgA)
-  San Emigdio loam, 2 to 8 percent slopes (SgC)

SOUTHEAST CORNER OF REDLANDS AVENUE AND ALESSANDRO BOULEVARD
HABITAT ASSESSMENT AND MSHCP CONSISTENCY ANALYSIS



Source: ESRI Aerial Imagery, Soil Survey Geographic Database, World Transportation, Riverside County

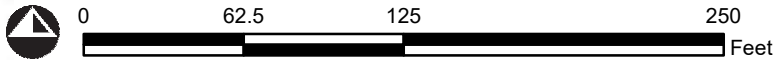
Soils



Legend

- Project Site
- Disturbed
- Developed

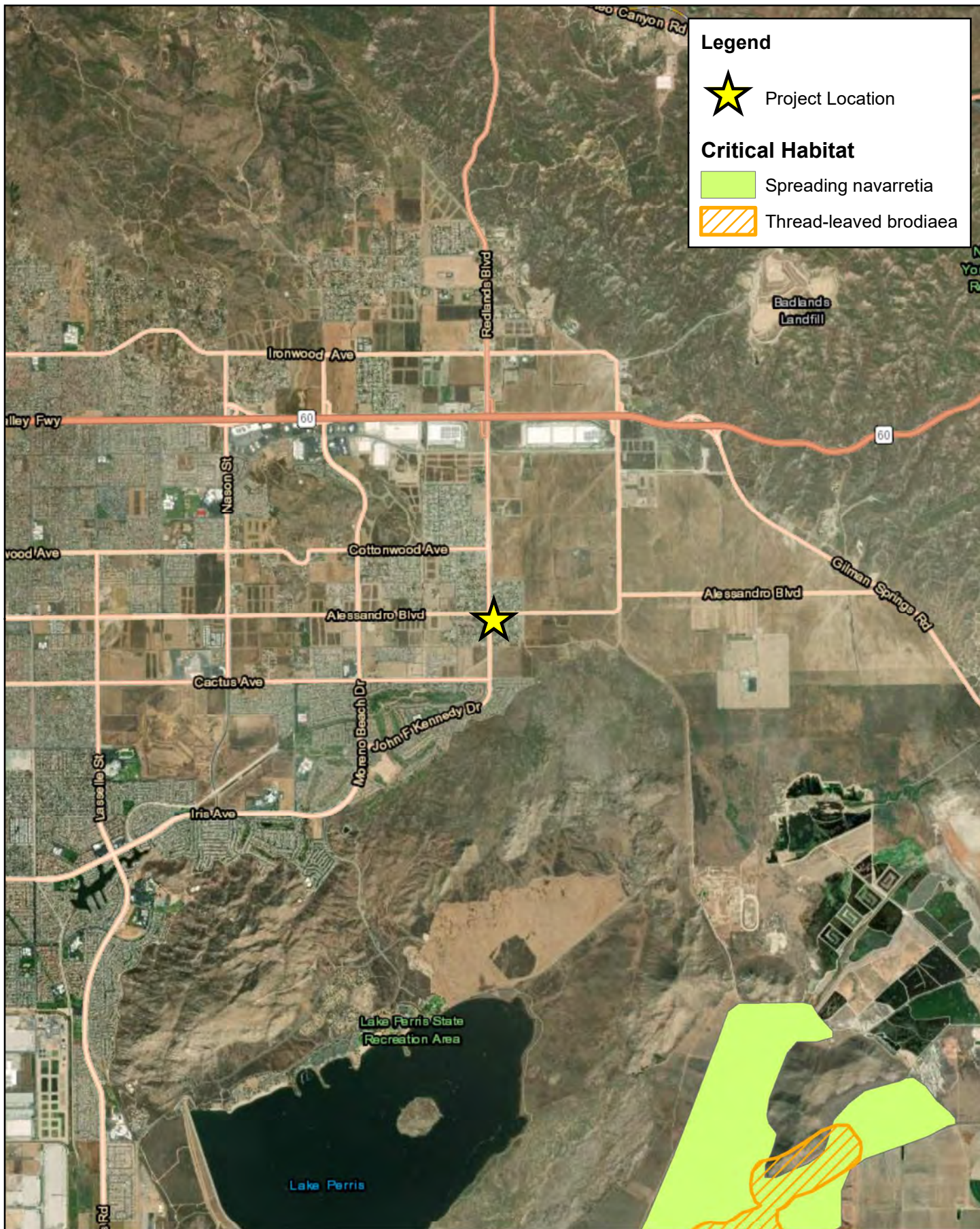
SOUTHEAST CORNER OF REDLANDS AVENUE AND ALESSANDRO BOULEVARD
 HABITAT ASSESSMENT AND MSHCP CONSISTENCY ANALYSIS






Source: ESRI Aerial Imagery, Soil Survey Geographic Database, World Transportation, Riverside County

Vegetation

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

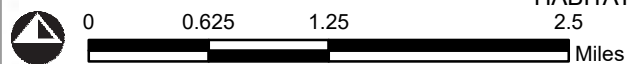


Legend

-  Project Location
- Critical Habitat**
-  Spreading navarretia
-  Thread-leaved brodiaea

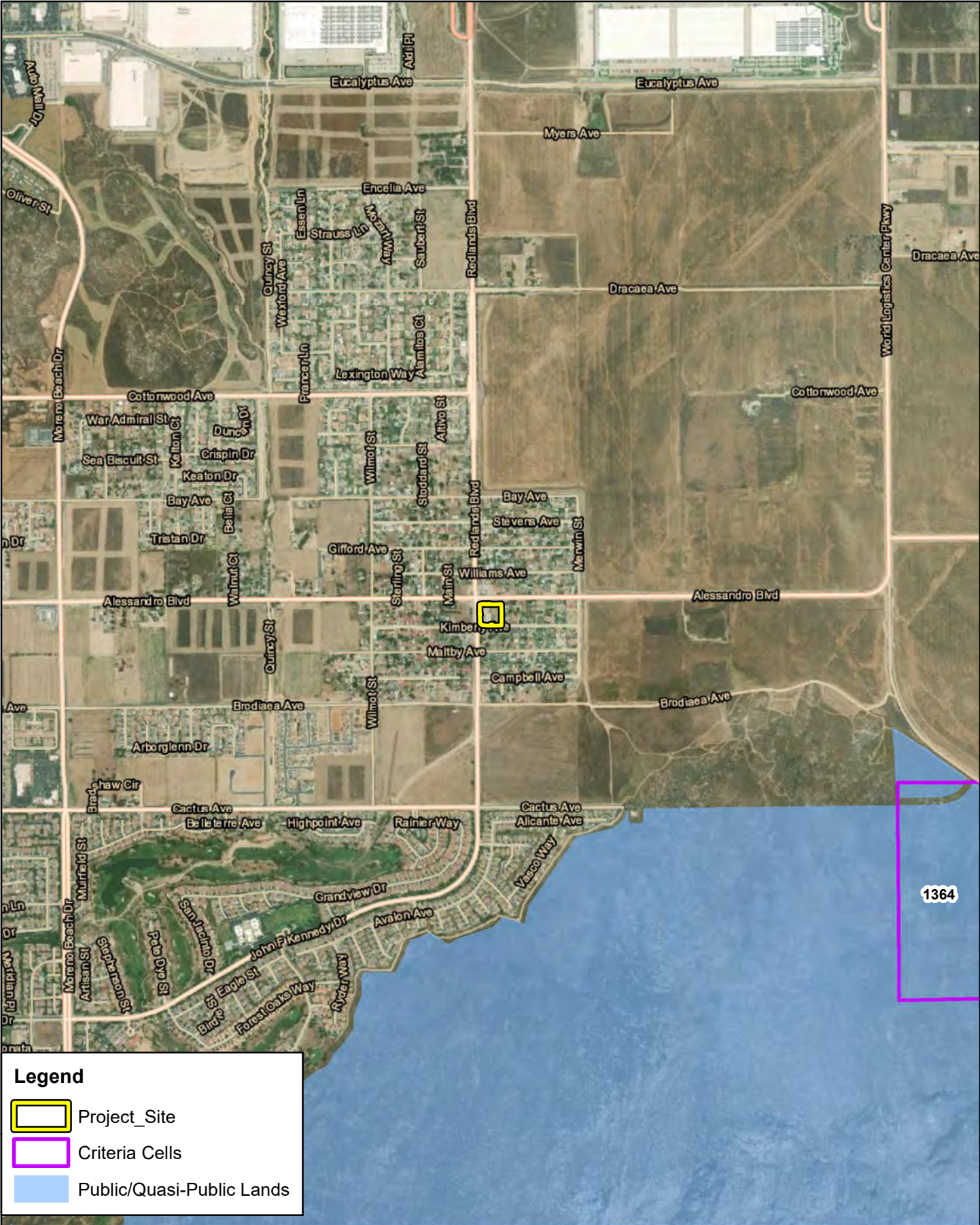
Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

SOUTHEAST CORNER OF REDLANDS AVENUE AND ALESSANDRO BOULEVARD
HABITAT ASSESSMENT AND MSHCP CONSISTENCY ANALYSIS



Source: ESRI Aerial Imagery, USFWS Critical Habitat, Riverside County

Critical Habitat

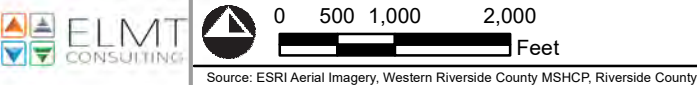


Legend

- Project_Site
- Criteria Cells
- Public/Quasi-Public Lands

SOUTHEAST CORNER OF REDLANDS AVENUE AND ALESSANDRO BOULEVARD
 HABITAT ASSESSMENT AND MSHCP CONSISTENCY ANALYSIS

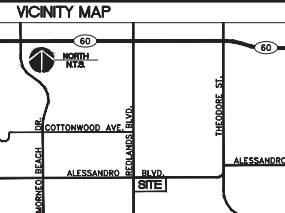
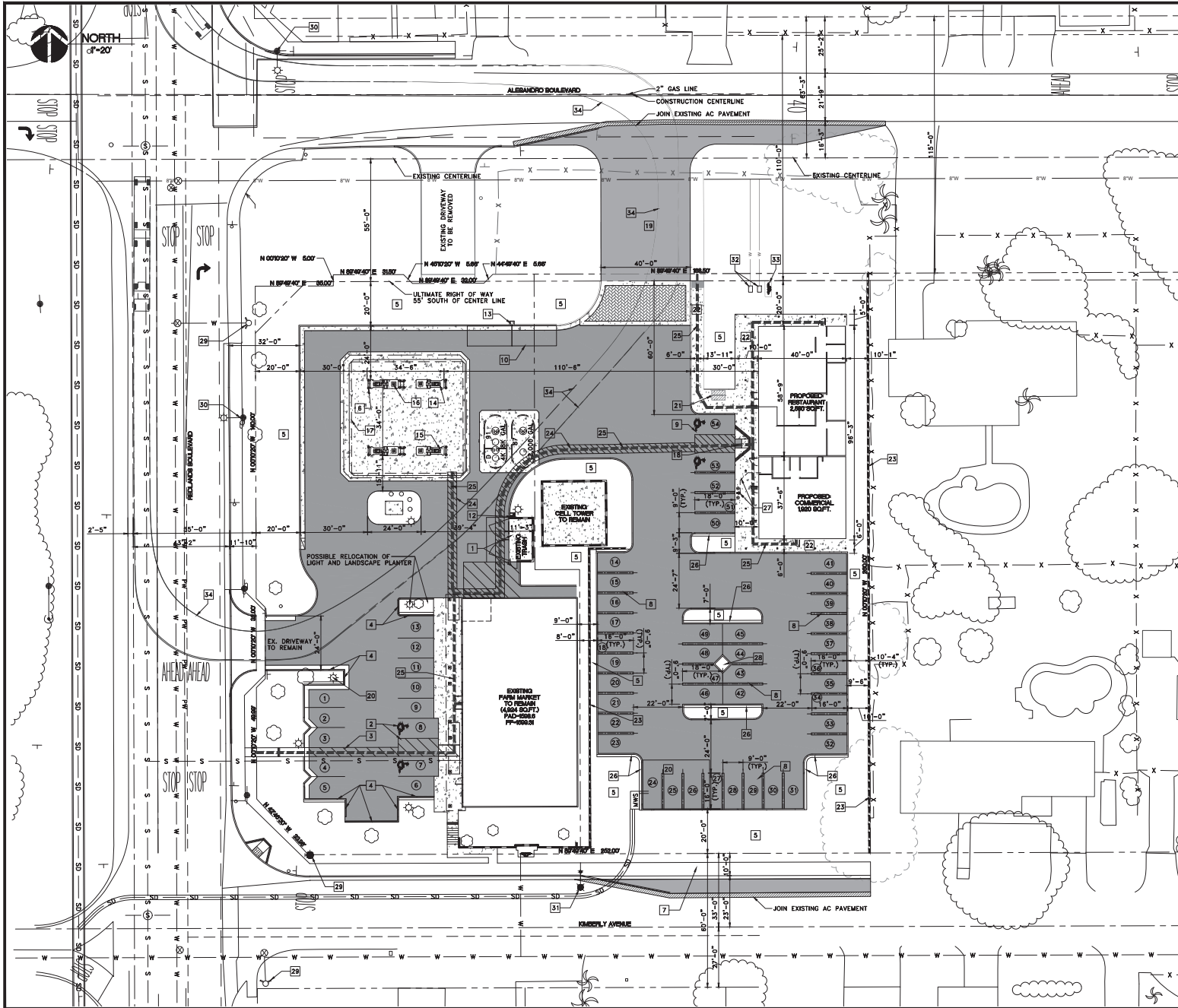
MSHCP Criteria Area



Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Attachment B

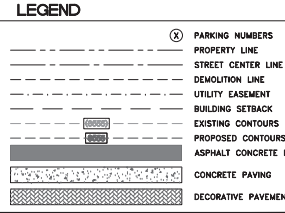
Site Plan



SITE PLAN NOTES

- 1 EXISTING ADA ACCESSIBLE TRASH ENCLOSURE 20'-0" X 11' WITH 3' MAN DOOR ON SOUTH SIDE.
- 2 EXISTING ADA ACCESSIBLE PARKING STALL WITH ADA SIGN
- 3 EXISTING ADA PATH OF TRAVEL
- 4 EXISTING 8" CURB AND GUTTER
- 5 PROPOSED LANDSCAPE WITH NEW 6" CONCRETE CURBS.
- 6 PROPOSED 6" BOLLARD. (TYPICAL OF 9)
- 7 PROPOSED SIDEWALK WITH CURB & GUTTER.
- 8 PROPOSED 9'-0" X 16'-0" PARKING STALLS. (TYP. OF)
- 9 PROPOSED 9'-0" X 18'-0" PARKING STALLS. (TYP. OF)
- 10 PROPOSED 9'-0" X 20'-0" PARKING STALLS. (TYP. OF)
- 11 PROPOSED YARD LIGHTS. (TYP. OF 6)
- 12 PROPOSED VENT RISERS.
- 13 PROPOSED AIR & WATER.
- 14 PROPOSED 3+1 DISPENSER WITH DIESEL.
- 15 PROPOSED 3+1 DISPENSER WITH E-85.
- 16 PROPOSED CANOPY COLUMNS.
- 17 PROPOSED 50'-0" X 50'-0" CANOPY.
- 18 PROPOSED ADA COMPLIANT CONCRETE RAMP.
- 19 PROPOSED 40'-0" WIDE DRIVE WAY.
- 20 PROPOSED UNDERGROUND STORM WATER VAULT (STORM T YBMP=2,550 CF.
- 21 PROPOSED BICYCLE PARKING WITH 2 BIKE MIN. CAPACITY.
- 22 PROPOSED CONCRETE SIDEWALK
- 23 PROPOSED CMU RETAINING WALL PER SEPARATE PERMIT, SI PLANS.
- 24 PROPOSED STRIPED ADA PATH OF TRAVEL.
- 25 PROPOSED SITE ACCESSIBILITY PATH OF TRAVEL AT DASHEI
- 26 PROPOSED 12" WIDE CONCRETE STEP OUT.
- 27 PROPOSED BY CHARGING STATION AND CONDUIT, INSTALL DUAL-PORT STATION BY CHARGE POINT.
- 28 PROPOSED DIAMOND PLANTER WITH 5' MIN INTERIOR DIMEN
- 29 EXISTING FIRE HYDRANT
- 30 EXISTING POWER POLE WITH STREET LIGHT
- 31 PROPOSED STREET LIGHT (TYP. OF)
- 32 PROPOSED WATER METERS, SEE CIVIL PLANS
- 33 PROPOSED DOUBLE DETECTOR CHECK ASSEMBLY, SEE CIVIL
- 34 PROPOSED PATH OF REFUELING TRUCK ON/OFF THE SITE

PARKING NOTE: ALL PARKING STALLS TO BE DOUBLE STRIPED I CITY STANDARDS



Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET

HEADY DESIGN INC.
 7345 Camalan St, Suite 233
 Rancho Cucamonga, CA 91730
 Phone: (909) 584-2002
 Email: theady@headydesign.com



FARM MARKET
 16058 RECLANDS BLVD
 MORENO VALLEY, CA 92555

Rev.	Date	Revision Description

Documents prepared by Head Design Inc. including this drawing, are to be used for the specific project and site only. They are not to be used for any other project, without the express written consent of Head Design Inc. The user assumes all liability for any errors or omissions and agrees to indemnify and hold Head Design Inc. harmless.

JOB NO: FMG-001
 DRAWN BY: SK
 DATE: 01/08/2020
 SCALE: 1"=20'

DRAWING:

SP1

Attachment C

Site Photographs



Photograph 1: From the northeast corner of the project site looking south along the eastern boundary.



Photograph 2: From the northeast corner of the project site looking west along the northern boundary.

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)



Photograph 3: From the northwest corner of the project site looking east along the northern boundary.



Photograph 4: From the northwest corner of the project site looking south along the western boundary.

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)



Photograph 5: From the middle of the western boundary of the project site looking southeast.



Photograph 6: From the southwest corner of the project site looking east along the southern boundary.

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)



Photograph 7: From the southeast corner of the project site looking west along the southern boundary.



Photograph 8: From the southeast corner of the project site looking north along the eastern boundary.

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Attachment D

Potentially Occurring Special-Status Plant Species

Attachment D – Potentially Occurring Special-Status Biological Resources

Scientific Name Common Name	Status	Habitat	Observed Onsite	Potential to Occur
SPECIAL-STATUS WILDLIFE SPECIES				
<i>Accipiter cooperii</i> Cooper's hawk	Fed: None CA: WL	Generally found in forested areas up to 3,000 feet in elevation, especially near edges and rivers. Prefers hardwood stands and mature forests, but can be found in urban and suburban areas where there are tall trees for nesting. Common in open areas during nesting season.	No	Low. There is minimal foraging habitat on-site, but no suitable nesting opportunities are present. This species is adapted to urban environments.
<i>Accipiter striatus</i> sharp-shinned hawk	Fed: None CA: WL	Found in pine, fir and aspen forests. They can be found hunting in forest interior and edges from sea level to near alpine areas. Can also be found in rural, suburban and agricultural areas, where they often hunt at bird feeders. Typically found in southern California in the winter months.	No	Low. There is minimal foraging habitat on-site, but no suitable nesting opportunities are present. This species is adapted to urban environments.
<i>Agelaius tricolor</i> tricolored blackbird	Fed: None CA: THR; SSC	Highly colonial yearlong resident of California that frequents emergent wetlands, croplands, grassy fields, flooded land and along edges of ponds. Usually nests near fresh water, preferably in emergent wetland with tall, dense cattails (<i>Typha sp.</i>) or tules (<i>Schoenoplectus sp.</i>), but also in thickets of willow (<i>Salix sp.</i>), blackberry (<i>Rubus sp.</i>), and tall herbs.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Aimophila ruficeps canescens</i> southern California rufous-crowned sparrow	Fed: None CA: WL	Typically found between 3,000 and 6,000 feet in elevation. Breed in sparsely vegetated shrublands on hillsides and canyons. Prefers coastal sage scrub dominated by California sagebrush (<i>Artemisia californica</i>) but can also be found breeding in coastal bluff scrub, low-growing serpentine chaparral, and along the edges of tall chaparral habitats.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Ammodramus savannarum</i> grasshopper sparrow	Fed: None CA: SSC	Occurs in grassland, upland meadow, pasture, hayfield, and old field habitats. Optimal habitat contains short- to medium-height bunch grasses interspersed with patches of bare ground, a shallow litter layer, scattered forbs, and few shrubs. May inhabit thickets, weedy lawns, vegetated landfills, fence rows, open fields, or grasslands.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Anniella stebbinsi</i> southern California legless lizard	Fed: None CA: SSC	Mostly found in coastal sand dunes and a variety of interior habitats, including sandy washes and alluvial fans. They live mostly underground, burrowing in the loose sandy soils.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.

Attachment D – Potentially Occurring Special-Status Biological Resources

Scientific Name Common Name	Status	Habitat	Observed Onsite	Potential to Occur
<i>Aquila chrysaetos</i> golden eagle	Fed: None CA: FP, WL	Occupies nearly all terrestrial habitats of the western states except densely forested areas. Favors secluded cliffs with overhanging ledges and large trees for nesting and cover. Hilly or mountainous country where takeoff and soaring are supported by updrafts is generally preferred to flat habitats. Deeply cut canyons rising to open mountain slopes and crags are ideal habitat.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Ardea alba</i> great egret	Fed: None CA: None	Yearlong resident throughout California, except for the high mountains and deserts. Feeds and rests in fresh, and saline emergent wetlands, along the margins of estuaries, lakes, and slow-moving streams, on mudflats and salt ponds, and in irrigated croplands and pastures.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Ardea herodias</i> great blue heron	Fed: None CA: None	Fairly common all year throughout most of California, in shallow estuaries and fresh and saline emergent wetlands. Less common along riverine and rocky marine shores, in croplands, pastures, and in mountains about foothills.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Artemisospiza belli belli</i> Bell's sage sparrow	Fed: None CA: WL	Occurs in chaparral dominated by fairly dense stands of chamise. Also found in coastal sage scrub in south of range.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Asio flammeus</i> short-eared owl	Fed: None CA: SSC	Suitable habitats include salt- and freshwater marshes, irrigated alfalfa or grain fields, and ungrazed grasslands and old pastures. Tule marsh or tall grasslands with cover 30 to 50 cm in height can support nesting pairs.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Asio otus</i> long-eared owl	Fed: None CA: SSC	Hunts mostly at night over grasslands and other open habitats. Nesting occurs in dense trees such as oaks and willows where it occupies stick nests of other species, particularly raptors or corvids.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Aspidoscelis hyperythra</i> orangethroat whiptail	Fed: None CA: WL	Inhabits low-elevations coastal scrub, chamise-redshank chaparral, mixed chaparral, and valley-foothill hardwood habitats. Semi-arid brushy areas typically with loose soil and rocks, including washes, streamsides, rocky hillsides, and coastal chaparral.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Aspidoscelis tigris stejnegeri</i> coastal whiptail	Fed: None CA: SSC	Found in a variety of ecosystems, primarily hot and dry open areas with sparse foliage - chaparral, woodland, and riparian areas.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.

Attachment D – Potentially Occurring Special-Status Biological Resources

Scientific Name Common Name	Status	Habitat	Observed Onsite	Potential to Occur
<i>Athene cunicularia</i> burrowing owl	Fed: None CA: SSC	Primarily a grassland species, but it persists and even thrives in some landscapes highly altered by human activity. Occurs in open, annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. The overriding characteristics of suitable habitat appear to be burrows for roosting and nesting and relatively short vegetation with only sparse shrubs and taller vegetation.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Aythya calisineria</i> canvasback	Fed: None CA: None	Typically found in shallow freshwater lakes, ponds, and marshes.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Buteo regalis</i> ferruginous hawk	Fed: None CA: WL	Occurs primarily in open grasslands and fields, but may be found in sagebrush flats, desert scrub, low foothills, or along the edges of pinyon-juniper woodland. Feeds primarily on small mammals and typically found in agricultural or open fields.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Buteo swainsoni</i> Swainson's hawk	Fed: None CA: THR	Typical habitat is open desert, grassland, or cropland containing scattered, large trees or small groves. Breeds in stands with few trees in juniper-sage flats, riparian areas, and in oak savannah in the Central Valley. Forages in adjacent grassland or suitable grain or alfalfa fields or livestock pastures.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Calypte costae</i> Costa's hummingbird	Fed: None CA: None	Desert and semi-desert, arid brushy foothills and chaparral. A desert hummingbird that breeds in the Sonoran and Mojave Deserts. Departs desert heat moving into chaparral, scrub, and woodland habitats.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Chaetodipus fallax fallax</i> northwestern San Diego pocket mouse	Fed: None CA: SSC	Occurs in desert and coastal habitats in southern California, Mexico, and northern Baja California, from sea level to at least 1,400 meters above msl. Found in a variety of temperate habitats ranging from chaparral and grasslands to scrub forests and deserts. Requires low growing vegetation or rocky outcroppings, as well as sandy soils for burrowing.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Chaetura vauxi</i> Vaux's swift	Fed: None CA: SSC	Prefers redwood and Douglas-fir habitats with nest-sites in large hollow trees and snags, especially tall, burned-out stubs.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.

Attachment D – Potentially Occurring Special-Status Biological Resources

Scientific Name Common Name	Status	Habitat	Observed Onsite	Potential to Occur
<i>Circus hudsonius</i> northern harrier	Fed: None CA: SSC	Most common in large, undisturbed tracts of wetlands and grasslands with low, thick vegetation. They breed in freshwater and brackish marshes, lightly grazed meadows, old fields, tundra, dry upland prairies, drained marshlands, high-desert shrubsteppe, and riverside woodlands. During winter they use a range of habitats with low vegetation, including deserts, coastal sand dunes, pasturelands, croplands, dry plains, grasslands, old fields, estuaries, open floodplains, and marshes.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Coccyzus americanus occidentalis</i> western yellow-billed cuckoo	Fed: THR CA: END	In California, the breeding distribution is now thought to be restricted to isolated sites in Sacramento, Amargosa, Kern, Santa Ana, and Colorado River valleys. Obligate riparian species with a primary habitat association of willow-cottonwood riparian forest.	No	Presumed Absent. There is no suitable habitat within the project site.
<i>Coleonyx variegatus abbotti</i> San Diego banded gecko	Fed: None CA: SSC	Prefers rocky coastal sage and chaparral habitat with granite outcrops. Also occurs in dry, rocky riverbeds. Species avoids areas with a high intensity of artificial night lighting.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Crotalus ruber</i> red-diamond rattlesnake	Fed: None CA: SSC	It can be found from the desert, through dense chaparral in the foothills (it avoids the mountains above around 4,000 feet), to warm inland mesas and valleys, all the way to the cool ocean shore. It is most commonly associated with heavy brush with large rocks or boulders. Dense chaparral in the foothills, cactus or boulder associated coastal sage scrub, oak and pine woodlands, and desert slope scrub associations are known to carry populations of the northern red-diamond rattlesnake; however, chamise and red shank associations may offer better structural habitat for refuges and food resources for this species than other habitats.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Diadophis punctatus modestus</i> San Bernardino ringneck snake	Fed: None CA: None	Common in open, relatively rocky areas within valley-foothill, mixed chaparral, and annual grass habitats.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.

Attachment D – Potentially Occurring Special-Status Biological Resources

Scientific Name Common Name	Status	Habitat	Observed Onsite	Potential to Occur
<i>Dipodomys merriami parvus</i> San Bernardino kangaroo rat	Fed: END CA: CE; SSC	Primarily found in Riversidian alluvial fan sage scrub and sandy loam soils, alluvial fans and flood plains, and along washes with nearby sage scrub. May occur at lower densities in Riversidian upland sage scrub, chaparral and grassland in uplands and tributaries in proximity to Riversidian alluvial fan sage scrub habitats. Tend to avoid rocky substrates and prefer sandy loam substrates for digging of shallow burrows.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Dipodomus simulans</i> Dulzura kangaroo rat	Fed: None CA: None	Typical habitat is open desert, grassland, or cropland containing scattered, large trees or small groves. Breeds in stands with few trees in juniper-sage flats, riparian areas, and in oak savannah in the Central Valley. Forages in adjacent grassland or suitable grain or alfalfa fields or livestock pastures.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Dipodomys stephensi</i> Stephens' kangaroo rat	Fed: END CA: THR	Occur in arid and semi-arid habitats with some grass or brush. Prefer open habitats with less than 50% protective cover. Require soft, well-drained substrate for building burrows and are typically found in areas with sandy soil.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Egretta thula</i> snowy egret	Fed: None CA: None	Widespread in California along shores of coastal estuaries, fresh and saline emergent wetlands, ponds, slow-moving rivers, irrigation ditches, and wet fields. In southern California, common yearlong in the Imperial Valley and along the Colorado River.	No	Presumed Absent. There is no suitable habitat within the project site.
<i>Elanus leucurus</i> white-tailed kite	Fed: None CA: FP	Occurs in low elevation, open grasslands, savannah-like habitats, agricultural areas, wetlands, and oak woodlands. Uses trees with dense canopies for cover.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Empidonax traillii</i> willow flycatcher	Fed: None CA: END	Occurs in riparian woodlands in southern California. Typically requires large areas of willow thickets in broad valleys, canyon bottoms, or around ponds and lakes. These areas typically have standing or running water, or are at least moist.	No	Presumed Absent. There is no suitable habitat within the project site.
<i>Empidonax traillii extimus</i> southwestern willow flycatcher	Fed: END CA: END	Occurs in riparian woodlands in southern California. Typically requires large areas of willow thickets in broad valleys, canyon bottoms, or around ponds and lakes. These areas typically have standing or running water, or are at least moist.	No	Presumed Absent. There is no suitable habitat within the project site.

Attachment D – Potentially Occurring Special-Status Biological Resources

Scientific Name Common Name	Status	Habitat	Observed Onsite	Potential to Occur
<i>Emys marmorata</i> western pond turtle	Fed: None CA: SSC	Found in ponds, lakes, rivers, streams, creeks, marshes, and irrigation ditches, with abundant vegetation, either rocky or muddy bottoms, in woodland, forest, and grassland. In streams, prefers pools to shallower areas. Logs, rocks, cattail mats, and exposed banks are required for basking. May enter brackish water and even seawater. Found at elevations from sea level to over 5,900 feet (1,800 m).	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Eremophila alpestris actia</i> California horned lark	Fed: None CA: WL	Occurs in meadows, grasslands, open fields, prairie, and alkali flats. This subspecies is typically found in coastal regions.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Eumops perotis californicus</i> western mastiff bat	Fed: None CA: SSC	Primarily a cliff-dwelling species, roost generally under exfoliating rock slabs. Roosts are generally high above the ground, usually allowing a clear vertical drop of at least three meters below the entrance for flight. In California, it is most frequently encountered in broad open areas. Its foraging habitat includes dry desert washes, flood plains, chaparral, oak woodland, open ponderosa pine forest, grassland, and agricultural areas.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Falco columbarius</i> merlin	Fed: None CA: WL	Nest in forested openings, edges, and along rivers across northern North America. Found in open forests, grasslands, and especially coastal areas with flocks of small songbirds or shorebirds.	No	Presumed Absent. There is no suitable habitat within the project site.
<i>Falco mexicanus</i> prairie falcon	Fed: None CA: WL	Commonly occur in arid and semiarid shrubland and grassland community types. Also occasionally found in open parklands within coniferous forests. During the breeding season, they are found commonly in foothills and mountains which provide cliffs and escarpments suitable for nest sites.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Falco peregrinus anatum</i> American peregrine falcon	Fed: DL CA: DL; FP	Uncommon winter resident of the inland region of southern California. Active nesting sites are known along the coast north of Santa Barbara, in the Sierra Nevada, and in other mountains of northern California. Breeds mostly in woodland, forest, and coastal habitats. Riparian areas and coastal and inland wetlands are important habitats yearlong, especially in nonbreeding seasons.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Haliaeetus leucocephalus</i> bald eagle	Fed: DL CA: DL; FP	Occur primarily at or near seacoasts, rivers, swamps, and large lakes. Need ample foraging opportunities, typically near a large water source.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.

Attachment D – Potentially Occurring Special-Status Biological Resources

Scientific Name Common Name	Status	Habitat	Observed Onsite	Potential to Occur
<i>Icteria virens</i> yellow-breasted chat	Fed: None CA: SSC	Primarily found in tall, dense, relatively wide riparian woodlands and thickets of willows, vine tangles, and dense brush with well-developed understories. Nesting areas are associated with streams, swampy ground, and the borders of small ponds. Breeding habitat must be dense to provide shade and concealment. It winters south the Central America.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Lanius ludovicianus</i> loggerhead shrike	Fed: None CA: SSC	Often found in broken woodlands, shrublands, and other habitats. Prefers open country with scattered perches for hunting and fairly dense brush for nesting.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Larus californicus</i> California gull	Fed: None CA: WL	Require isolated islands in rivers, reservoirs and natural lakes for nesting, where predations pressures from terrestrial mammals are diminished. Uses both fresh and saline aquatic habitats at variable elevations and degrees of aridity for nesting and for opportunistic foraging.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Lasiurus xanthinus</i> western yellow bat	Fed: None CA: SSC	Roosts in palm trees in foothill riparian, desert wash, and palm oasis habitats with access to water for foraging.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Lepus californicus bennettii</i> San Diego black-tailed jackrabbit	Fed: None CA: SSC	Found in diverse habitats, but primarily is found in arid regions supporting shortgrass habitats. Openness of open scrub habitat is preferred over dense chaparral.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Lynx rufus pallidensis</i> pallid bobcat	Fed: None CA: None	Found on the western edge of the great basin habitat in extreme northeast California. Live in a variety of habitats including forests, deserts, mountains, swamps and farmland.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Myotis ciliolabrum</i> western small-footed myotis	Fed: None CA: None	Occurs in a wide range of habitats, mostly arid wooded and brushy uplands near water. Prefers open stands in forests and woodlands. Roosts in caves, buildings, mines, and crevices.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Myotis yumanensis</i> Yuma myotis	Fed: None CA: None	Common and widespread in California within open forests and woodlands with sources of water over which to feed. Roosts in buildings, mines, caves, or crevices. Has also been seen roosting in abandoned swallow nests and under bridges.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.

Attachment D – Potentially Occurring Special-Status Biological Resources

Scientific Name Common Name	Status	Habitat	Observed Onsite	Potential to Occur
<i>Neotoma lepida intermedia</i> San Diego desert woodrat	Fed: None CA: SSC	Occurs in coastal scrub communities between San Luis Obispo and San Diego Counties. Prefers moderate to dense canopies, and especially rocky outcrops.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Numenius americanus</i> long-billed curlew	Fed: None CA: WL	Preferred winter habitats include large coastal estuaries, upland herbaceous areas, and croplands. On estuaries, feeding occurs mostly on intertidal mudflats.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Nycticorax nycticorax</i> black-crowned night heron	Fed: None CA: None	Fairly common, yearlong resident in lowlands and foothills throughout most of California, including the Salton Sea and Colorado River areas, and very common locally in large nesting colonies. Feeds along the margins of lacustrine, large riverine, and fresh and saline emergent habitats and rarely, on kelp beds in marine sub tidal habitats. Nests and roosts in dense-foliaged trees and dense emergent wetlands.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Nyctinomops femorosaccus</i> pocketed free-tailed bat	Fed: None CA: SSC	Often found in pinyon-juniper woodlands, desert scrub, desert succulent shrub, desert riparian, desert wash, alkali desert scrub, Joshua tree, and palm oasis.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Pandion haliaetus</i> osprey	Fed: None CA: WL	Remain close to still or slow-moving bodies of water including oceans, rivers, lakes, mangroves, coastal wetlands, lagoons, reefs, estuaries and marshes. Generally nest in high places, such as trees, power poles, or cliffs.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Pelecanus erythrorhynchos</i> American white pelican	Fed: None CA: SSC	Locally common winter resident of southern California. Typically forage in shallow inland waters, such as open areas in marshes and along lake or river edges. Also occur in shallow coastal marine habitats.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Perognathus longimembris brevinasus</i> Los Angeles pocket mouse	Fed: None CA: SSC	Resides in lower elevation grasslands and coastal sage scrub communities in and around the Los Angeles Basin. Prefers open ground with fine sandy soils. May not dig extensive burrows, but instead will seek refuge under weeds and dead leaves instead.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Phalacrocorax auritus</i> double-crested cormorant	Fed: None CA: WL	Common yearlong resident in southern California. Occurs widely in freshwater and marine habitats along coastlines. Require open water where they can forage for schooling fish.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.

Attachment D – Potentially Occurring Special-Status Biological Resources

Scientific Name Common Name	Status	Habitat	Observed Onsite	Potential to Occur
<i>Phrynosoma blainvillii</i> coast horned lizard	Fed: None CA: SSC	Found in a wide variety of vegetation types including coastal sage scrub, annual grassland, chaparral, oak woodland, riparian woodland and coniferous forest. In inland areas, this species is restricted to areas with pockets of open microhabitat, created by disturbance (i.e. fire, floods, roads, grazing, fire breaks). The key elements of such habitats are loose, fine soils with a high sand fraction; an abundance of native ants or other insects; and open areas with limited overstory for basking and low, but relatively dense shrubs for refuge.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Plegadis chihi</i> white-faced ibis	Fed: None CA: WL	Prefers to feed in fresh emergent wetland, shallow lacustrine waters, muddy ground of wet meadows, and irrigated or flooded pastures and croplands. Nests in dense, fresh emergent wetland.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Polioptila californica californica</i> coastal California gnatcatcher	Fed: THR CA: SSC	Obligate resident of sage scrub habitats that are dominated by California sagebrush. This species generally occurs below 750 feet elevation in coastal regions and below 1,500 feet inland. It prefers habitat with more low-growing vegetation.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Salvadora hexalepis virgultea</i> coast patch-nosed snake	Fed: None CA: SSC	Inhabits semi-arid brushy areas and chaparral in canyons, rocky hillsides, and plains.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Setophaga petechia</i> yellow warbler	Fed: None CA: SSC	Nests over all of California except the Central Valley, the Mojave Desert region, and high altitudes and the eastern side of the Sierra Nevada. Winters along the Colorado River and in parts of Imperial and Riverside Counties. Nests in riparian areas dominated by willows, cottonwoods, sycamores, or alders or in mature chaparral. May also use oaks, conifers, and urban areas near stream courses.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Spea hammondi</i> western spadefoot	Fed: None CA: SSC	Prefers open areas with sandy or gravelly soils, in a variety of habitats including mixed woodlands, grasslands, coastal sage scrub, chaparral, sandy washed, lowlands, river floodplains, alluvial fans, playas, alkali flats, foothills, and mountains. Rainpools which do not contain bullfrogs, fish, or crayfish are necessary for breeding.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.

Attachment D – Potentially Occurring Special-Status Biological Resources

Scientific Name Common Name	Status	Habitat	Observed Onsite	Potential to Occur
<i>Sphyrapicus ruber</i> red-breasted sapsucker	Fed: None CA: None	An uncommon to fairly common, yearlong or summer resident in openly wooded, mountainous parts of California. In southern California, an uncommon summer resident locally in the higher mountains. Preferred nesting habitats include montane riparian, aspen, montane hardwood-conifer, mixed conifer, and red fir, especially near meadows, clearings, lakes, and slow-moving streams.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Spinus lawrencei</i> Lawrence's goldfinch	Fed: None CA: None	Typical habitats include valley foothill hardwood, valley foothill hardwood-conifer, and, in southern California, desert riparian, palm oasis, pinyon-juniper, and lower montane habitats. Nearby herbaceous habitats often used for feeding. Open woodlands, chaparral, and weedy fields. Closely associated with oaks. Nests in open oak or other arid woodland and chaparral near water.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Taxidea taxus</i> American badger	Fed: None CA: SSC	Primarily occupy grasslands, parklands, farms, tallgrass and shortgrass prairies, meadows, shrub-steppe communities and other treeless areas with sandy loam soils where it can dig more easily for its prey. Occasionally found in open chaparral (with less than 50% plant cover) and riparian zones.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Vireo bellii pusillus</i> least Bell's vireo	Fed: END CA: END	Primarily occupy Riverine riparian habitat that typically feature dense cover within 1 -2 meters of the ground and a dense, stratified canopy. Typically it is associated with southern willow scrub, cottonwood-willow forest, mule fat scrub, sycamore alluvial woodlands, coast live oak riparian forest, arroyo willow riparian forest, or mesquite in desert localities. It uses habitat which is limited to the immediate vicinity of water courses, 2,000 feet elevation in the interior.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Xanthocephalus xanthocephalus</i> yellow-headed blackbird	Fed: None CA: SSC	Uncommon yearlong resident of southern California throughout freshwater emergent wetlands, and moist, open areas along agricultural areas, and mudflats of lacustrine habitats. Prefers to nest in dense wetland vegetation characterized by cattails, tules, or other similar plant species along the border of lakes and ponds.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
SPECIAL-STATUS PLANT SPECIES				
<i>Abronia villosa var. aurita</i> chaparral sand-verbena	Fed: None CA: None CNPS: 1B.1	Grows in sandy soils in coastal sage scrub and in chaparral habitats. Grows in elevation from 262 to 5,249 feet. Blooming period ranges from January to September.	No	Presumed Absent. There is no suitable habitat within the project site.

Attachment D – Potentially Occurring Special-Status Biological Resources

Scientific Name Common Name	Status	Habitat	Observed Onsite	Potential to Occur
<i>Artemisia palmeri</i> San Diego sagewort	Fed: None CA: None CNPS: 4.2	Found in sandy and mesic soils within chaparral, coastal scrub, riparian forest, riparian scrub, and riparian woodland habitats. Found at elevations ranging from 49 to 3,002 feet. Blooming period is from February to September.	No	Presumed Absent. There is no suitable habitat within the project site.
<i>Berberis nevini</i> Nevin's barberry	Fed: END CA: END CNPS: 1B.1	Occurs on steep, north-facing slopes or in low-grade sandy washes in chaparral, cismontane woodland, coastal scrub, and riparian scrub. From 951 to 5,167 feet in elevation. Blooming period is from February to June.	No	Presumed Absent. There is no suitable habitat within the project site.
<i>Calochortus plummerae</i> Plummer's mariposa-lily	Fed: None CA: None CNPS: 4.2	Prefers openings in chaparral, foothill woodland, coastal sage scrub, valley and foothill grasslands, cismontane woodland, lower montane coniferous forest and yellow pine forest. Often found on dry, rocky slopes and soils and brushy areas. Can be very common after a fire. From 328 to 5,577 feet in elevation. Blooming period is from May to July.	No	Presumed Absent. There is no suitable habitat within the project site.
<i>Caulanthus simulans</i> Payson's jewelflower	Fed: None CA: None CNPS: 4.2	Occurs on granitic sandy soils in chaparral and coastal scrub habitats. Found at elevations ranging from 295 to 7,218 feet. Blooming period is from February to June.	No	Presumed Absent. There is no suitable habitat within the project site.
<i>Centromadia pungens ssp. laevis</i> smooth tarplant	Fed: None CA: None CNPS: 1B.1	Occurs in alkaline soils within chenopod scrub, meadows and seeps, playas, riparian woodland, and valley and foothill grassland habitats. Grows in elevation ranging from 0 to 2,100 feet. Blooming period ranges from April to September.	No	Presumed Absent. There is no suitable habitat within the project site.
<i>Chorizanthe leptotheca</i> Peninsular spineflower	Fed: None CA: None CNPS: 4.2	Found in granitic soils within alluvial fan, chaparral, coastal scrub, and lower montane coniferous forest habitat. Found at elevations ranging from 984 to 6,234 feet. Blooming period is from May to August.	No	Presumed Absent. There is no suitable habitat within the project site.
<i>Chorizanthe parryi var. parryi</i> Parry's spineflower	Fed: None CA: None CNPS: 1B.1	Occurs on sandy and/or rocky soils in chaparral, coastal sage scrub, and sandy openings within alluvial washes and margins. Found at elevations ranging from 951 to 3,773 feet. Blooming period is from April to June.	No	Presumed Absent. There is no suitable habitat within the project site.
<i>Chorizanthe xanti var. leucotheca</i> white-bracted spineflower	Fed: None CA: None CNPS: 1B.2	Found in sandy or gravelly soils within coastal scrub (alluvial fans), Mojavean desert scrub, pinyon and juniper woodland habitats. Found at elevations ranging from 984 to 3,937 feet. Blooming period is from April to June.	No	Presumed Absent. There is no suitable habitat within the project site.
<i>Deinandra paniculata</i> paniculate tarplant	Fed: None CA: None CNPS: 4.2	Typically found in vernal mesic, sometimes sandy soils in coastal scrub, valley and foothill grasslands, and vernal pools. Found at elevations ranging from 82 to 3,084 feet. Blooming period is from April to November.	No	Presumed Absent. There is no suitable habitat within the project site.

Attachment D – Potentially Occurring Special-Status Biological Resources

Scientific Name Common Name	Status	Habitat	Observed Onsite	Potential to Occur
<i>Juglans californica</i> southern California black walnut	Fed: None CA: None CNPS: 4.2	Found in chaparral, cismontane woodland, coastal scrub, and riparian woodland habitats. Found at elevations ranging from 164 to 2,953 feet. Blooming period is from March to August.	No	Presumed Absent. There is no suitable habitat within the project site.
<i>Lasthenia glabrata ssp. coulteri</i> Coulter's goldfields	Fed: None CA: None CNPS: 1B.1	Prefers playas, vernal pools, and coastal salt marshes and swamps. Found at elevations ranging from 3 to 4,003 feet. Blooming period is from February to June.	No	Presumed Absent. There is no suitable habitat within the project site.
<i>Lepidium virginicum var. robinsonii</i> Robinson's pepper-grass	Fed: None CA: None CNPS: 4.3	Dry soils on chaparral and coastal sage scrub. Found at elevations ranging from 3 to 2,904 feet. Blooming period is from January to July.	No	Presumed Absent. There is no suitable habitat within the project site.
<i>Symphotrichum defoliatum</i> San Bernardino aster	Fed: None CA: None CNPS: 1B.2	Grows in cismontane woodland, coastal scrub, lower montane coniferous forest, meadows and seeps, marshes and swamps, valley and foothill grassland (vernally mesic). Can be found growing near ditches, streams, and springs within these habitats. Found at elevations ranging from 7 to 6,693 feet. Blooming period is from July to November.	No	Presumed Absent. There is no suitable habitat within the project site.
SPECIAL-STATUS PLANT COMMUNITIES				
Southern Sycamore Alder Riparian Woodland	CDFW Sensitive Habitat	Occurs below 2,000 meters in elevation, sycamore and alder often occur along seasonally-flooded banks; cottonwoods and willows are also often present. Poison oak, mugwort, elderberry and wild raspberry may be present in understory.	No	Absent

U.S. Fish and Wildlife Service (USFWS) - Federal
 END- Federal Endangered
 THR- Federal Threatened
 Candidate END – Under Review

California Department of Fish and Wildlife (CDFW) - California
 END- California Endangered
 CSC- California Species of Concern
 WL- Watch List
 FP- California Fully Protected

California Native Plant Society (CNPS) California Rare Plant Rank
 1A- Plants Presumed Extirpated in California and Either Rare or Extinct Elsewhere
 1B- Plants Rare, Threatened, or Endangered in California and Elsewhere
 2B- Plants Rare, Threatened, or Endangered in California, but More Common Elsewhere
 4- Plants of Limited Distribution – A Watch List

Threat Ranks
 0.1- Seriously threatened in California
 0.2- Moderately threatened in California
 0.3- Not very threatened in California

Attachment E

Regulations

Special status species are native species that have been afforded special legal or management protection because of concern for their continued existence. There are several categories of protection at both federal and state levels, depending on the magnitude of threat to continued existence and existing knowledge of population levels.

Federal Regulations

Endangered Species Act of 1973

Federally listed threatened and endangered species and their habitats are protected under provisions of the Federal Endangered Species Act (ESA). Section 9 of the ESA prohibits “take” of threatened or endangered species. “Take” under the ESA is defined as to “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any of the specifically enumerated conduct.” The presence of any federally threatened or endangered species that are in a project area generally imposes severe constraints on development, particularly if development would result in “take” of the species or its habitat. Under the regulations of the ESA, the United States Fish and Wildlife Service (USFWS) may authorize “take” when it is incidental to, but not the purpose of, an otherwise lawful act.

Critical Habitat is designated for the survival and recovery of species listed as threatened or endangered under the ESA. Critical Habitat includes those areas occupied by the species, in which are found physical and biological features that are essential to the conservation of an ESA listed species and which may require special management considerations or protection. Critical Habitat may also include unoccupied habitat if it is determined that the unoccupied habitat is essential for the conservation of the species.

Whenever federal agencies authorize, fund, or carry out actions that may adversely modify or destroy Critical Habitat, they must consult with USFWS under Section 7 of the ESA. The designation of Critical Habitat does not affect private landowners, unless a project they are proposing uses federal funds, or requires federal authorization or permits (e.g., funding from the Federal Highway Administration or a permit from the U.S. Army Corps of Engineers (Corps)).

If USFWS determines that Critical Habitat will be adversely modified or destroyed from a proposed action, the USFWS will develop reasonable and prudent alternatives in cooperation with the federal institution to ensure the purpose of the proposed action can be achieved without loss of Critical Habitat. If the action is not likely to adversely modify or destroy Critical Habitat, USFWS will include a statement in its biological opinion concerning any incidental take that may be authorized and specify terms and conditions to ensure the agency is in compliance with the opinion.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) (16 U.S. Government Code [USC] 703) makes it unlawful to pursue, capture, kill, possess, or attempt to do the same to any migratory bird or part, nest, or egg of any such bird listed in wildlife protection treaties between the United States, Great Britain, Mexico, Japan, and the countries of the former Soviet Union, and authorizes the U.S. Secretary of the Interior to protect and regulate the taking of migratory birds. It establishes seasons and bag limits for hunted species and protects migratory birds, their occupied nests, and their eggs (16 USC 703; 50 CFR 10, 21).

The MBTA covers the taking of any nests or eggs of migratory birds, except as allowed by permit pursuant to 50 CFR, Part 21. Disturbances causing nest abandonment and/or loss of reproductive effort (i.e., killing or abandonment of eggs or young) may also be considered “take.” This regulation seeks to protect migratory birds and active nests.

In 1972, the MBTA was amended to include protection for migratory birds of prey (e.g., raptors). Six families of raptors occurring in North America were included in the amendment: Accipitridae (kites, hawks, and eagles); Cathartidae (New World vultures); Falconidae (falcons and caracaras); Pandionidae (ospreys); Strigidae (typical owls); and Tytonidae (barn owls). The provisions of the 1972 amendment to the MBTA protects all species and subspecies of the families listed above. The MBTA protects over 800 species including geese, ducks, shorebirds, raptors, songbirds and many relatively common species.

State Regulations

California Environmental Quality Act (CEQA)

The California Environmental Quality Act (CEQA) provides for the protection of the environment within the State of California by establishing State policy to prevent significant, avoidable damage to the environment through the use of alternatives or mitigation measures for projects. It applies to actions directly undertaken, financed, or permitted by State lead agencies. If a project is determined to be subject to CEQA, the lead agency will be required to conduct an Initial Study (IS); if the IS determines that the project may have significant impacts on the environment, the lead agency will subsequently be required to write an Environmental Impact Report (EIR). A finding of non-significant effects will require either a Negative Declaration or a Mitigated Negative Declaration instead of an EIR. Section 15380 of the CEQA Guidelines independently defines “endangered” and “rare” species separately from the definitions of the California Endangered Species Act (CESA). Under CEQA, “endangered” species of plants or animals are defined as those whose survival and reproduction in the wild are in immediate jeopardy, while “rare” species are defined as those who are in such low numbers that they could become endangered if their environment worsens.

California Endangered Species Act (CESA)

In addition to federal laws, the state of California implements the CESA which is enforced by CDFW. The CESA program maintains a separate listing of species beyond the FESA, although the provisions of each act are similar.

State-listed threatened and endangered species are protected under provisions of the CESA. Activities that may result in “take” of individuals (defined in CESA as; “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill”) are regulated by CDFW. Habitat degradation or modification is not included in the definition of “take” under CESA. Nonetheless, CDFW has interpreted “take” to include the destruction of nesting, denning, or foraging habitat necessary to maintain a viable breeding population of protected species.

The State of California considers an endangered species as one whose prospects of survival and reproduction are in immediate jeopardy. A threatened species is considered as one present in such small numbers throughout its range that it is likely to become an endangered species in the near future in the

absence of special protection or management. A rare species is one that is considered present in such small numbers throughout its range that it may become endangered if its present environment worsens. State threatened and endangered species are fully protected against take, as defined above.

The CDFW has also produced a species of special concern list to serve as a species watch list. Species on this list are either of limited distribution or their habitats have been reduced substantially, such that a threat to their populations may be imminent. Species of special concern may receive special attention during environmental review, but they do not have formal statutory protection. At the federal level, USFWS also uses the label species of concern, as an informal term that refers to species which might be in need of concentrated conservation actions. As the Species of Concern designated by USFWS do not receive formal legal protection, the use of the term does not necessarily ensure that the species will be proposed for listing as a threatened or endangered species.

Fish and Game Code

Fish and Game Code Sections 3503, 3503.5, 3511, and 3513 are applicable to natural resource management. For example, Section 3503 of the Code makes it unlawful to destroy any birds' nest or any birds' eggs that are protected under the MBTA. Further, any birds in the orders Falconiformes or Strigiformes (Birds of Prey, such as hawks, eagles, and owls) are protected under Section 3503.5 of the Fish and Game Code which makes it unlawful to take, possess, or destroy their nest or eggs. A consultation with CDFW may be required prior to the removal of any bird of prey nest that may occur on a project site. Section 3511 of the Fish and Game Code lists fully protected bird species, where the CDFW is unable to authorize the issuance of permits or licenses to take these species. Pertinent species that are State fully protected by the State include golden eagle (*Aquila chrysaetos*) and white-tailed kite (*Elanus leucurus*). Section 3513 of the Fish and Game Code makes it unlawful to take or possess any migratory nongame bird as designated in the MBTA or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the MBTA.

Native Plant Protection Act

Sections 1900–1913 of the Fish and Game Code were developed to preserve, protect, and enhance Rare and Endangered plants in the state of California. The act requires all state agencies to use their authority to carry out programs to conserve Endangered and Rare native plants. Provisions of the Native Plant Protection Act prohibit the taking of listed plants from the wild and require notification of the CDFW at least ten days in advance of any change in land use which would adversely impact listed plants. This allows the CDFW to salvage listed plant species that would otherwise be destroyed.

California Native Plant Society Rare and Endangered Plant Species

Vascular plants listed as rare or endangered by the CNPS, but which have no designated status under FESA or CESA are defined as follows:

California Rare Plant Rank

- 1A- Plants Presumed Extirpated in California and either Rare or Extinct Elsewhere
- 1B- Plants Rare, Threatened, or Endangered in California and Elsewhere

- 2A- Plants Presumed Extirpated in California, But More Common Elsewhere
- 2B- Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere
- 3- Plants about Which More Information is Needed - A Review List
- 4- Plants of Limited Distribution - A Watch List

Threat Ranks

- .1- Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
- .2- Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)
- .3- Not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known).

Local Policies

Western Riverside County MSHCP

The MSHCP is a comprehensive, multi-jurisdictional HCP focusing on conservation of species and their associated habitats in western Riverside County. The goal of the MSHCP is to maintain biological and ecological diversity within a rapidly urbanizing region.

The approval of the MSHCP and execution of the Implementing Agreement (IA) by the wildlife agencies allows signatories of the IA to issue “take” authorizations for all species covered by the MSHCP, including state- and federal-listed species as well as other identified sensitive species and/or their habitats. Each city or local jurisdiction will impose a Development Mitigation Fee for projects within their jurisdiction. With payment of the mitigation fee to the County and compliance with the survey requirements of the MSHCP where required, full mitigation in compliance with the California Environmental Quality Act (CEQA), National Environmental Policy Act (NEPA), CESA, and FESA will be granted. The Development Mitigation Fee varies according to project size and project description. The fee for industrial development is \$7,382 per acre (County Ordinance 810.2). Payment of the mitigation fee and compliance with the requirements of Section 6.0 of the MSHCP are intended to provide full mitigation under CEQA, NEPA, CESA, and FESA for impacts to the species and habitats covered by the MSHCP pursuant to agreements with the USFWS, the CDFW, and/or any other appropriate participating regulatory agencies and as set forth in the IA for the MSHCP.

There are three key agencies that regulate activities within inland streams, wetlands, and riparian areas in California. The Corps Regulatory Branch regulates activities pursuant to Section 404 of the Federal Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act. Of the State agencies, the CDFG regulates activities under the Fish and Game Code Section 1600-1616, and the Regional Board regulates activities pursuant to Section 401 of the CWA and the California Porter-Cologne Water Quality Control Act.

Federal Regulations

Section 404 of the Clean Water Act

Since 1972, the Corps and EPA have jointly regulated the filling of waters of the United States, including wetlands, pursuant to Section 404 of the CWA. The Corps has regulatory authority over the discharge of dredged or fill material into the waters of the United States under Section 404 of the CWA. The Corps and EPA define “fill material” to include any “material placed in waters of the United States where the material has the effect of: (i) replacing any portion of a water of the United States with dry land; or (ii) changing the bottom elevation of any portion of the waters of the United States.” Examples include, but are not limited to, the placement of sand, rock, clay, construction debris, wood chips, and “materials used to create any structure or infrastructure in the waters of the United States.”

In April of 2020, the Corps and the EPA provided a new definition for *waters of the United States* [Federal Register, Vol. 85, No. 77 (April 21, 2020)] which encompass:

- The territorial seas and traditional navigable waters;
- Perennial and intermittent tributaries that contribute surface water flow to such waters;
- Certain lakes, ponds, and impoundments of jurisdictional waters; and
- Wetlands adjacent to other jurisdictional waters.

Additionally, the new definition identifies 12 categories of those waters and features that are excluded from the definition of “waters of the United State, such as features that only contain water in direct response to rainfall (e.g., ephemeral features), groundwater, many ditches, prior converted cropland, and waste treatment systems. The final rule excludes from the definition of “waters of the United States” all waters or features not mentioned above. In addition to this general exclusion, the final rule specifically clarifies that waters of the United States do not include the following:

- Groundwater, including groundwater drained through subsurface drainage systems;
- Ephemeral features that flow only indirect response to precipitation, including ephemeral streams, swales, gullies, rills, and pools;
- Diffuse stormwater runoff and directional sheet flow over upland;
- Ditches that are not traditional navigable waters, tributaries, or that are not constructed in adjacent wetlands, subject to certain limitations;
- Prior converted cropland;
- Artificially irrigated areas that would revert to upland if artificial irrigation ceases;
- Artificial lakes and ponds that are not jurisdictional impoundments and that are constructed or excavated in upland or non-jurisdictional waters;

- Water-filled depressions constructed or excavated in upland or in non-jurisdictional waters incidental to mining or construction activity, and pits excavated in upland or in non-jurisdictional waters for the purpose of obtaining fill, sand, or gravel;
- Stormwater control features constructed or excavated in upland or in non-jurisdictional waters to convey, treat, infiltrate, or store stormwater runoff;
- Groundwater recharge, water reuse, and wastewater recycling structures constructed or excavated in upland or in non-jurisdictional waters; and
- Waste treatment systems.

Section 401 of the Clean Water Act

Pursuant to Section 401 of the CWA, any applicant for a federal license or permit to conduct any activity which may result in any discharge to waters of the United States must provide certification from the State or Indian tribe in which the discharge originates. This certification provides for the protection of the physical, chemical, and biological integrity of waters, addresses impacts to water quality that may result from issuance of federal permits, and helps insure that federal actions will not violate water quality standards of the State or Indian tribe. In California, there are nine Regional Water Quality Control Boards (Regional Board) that issue or deny certification for discharges to waters of the United States and waters of the State, including wetlands, within their geographical jurisdiction. The State Water Resources Control Board assumed this responsibility when a project has the potential to result in the discharge to waters within multiple Regional Boards.

State Regulations

Fish and Game Code

Fish and Game Code Sections 1600 et. seq. establishes a fee-based process to ensure that projects conducted in and around lakes, rivers, or streams do not adversely impact fish and wildlife resources, or, when adverse impacts cannot be avoided, ensures that adequate mitigation and/or compensation is provided.

Fish and Game Code Section 1602 requires any person, state, or local governmental agency or public utility to notify the CDFW before beginning any activity that will do one or more of the following:

- (1) substantially obstruct or divert the natural flow of a river, stream, or lake;
- (2) substantially change or use any material from the bed, channel, or bank of a river, stream, or lake;
or
- (3) deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into a river, stream, or lake.

Fish and Game Code Section 1602 applies to all perennial, intermittent, and ephemeral rivers, streams, and lakes in the State. CDFW's regulatory authority extends to include riparian habitat (including wetlands) supported by a river, stream, or lake regardless of the presence or absence of hydric soils and saturated soil conditions. Generally, the CDFW takes jurisdiction to the top of bank of the stream or to the outer limit of the adjacent riparian vegetation (outer drip line), whichever is greater. Notification is generally required for any project that will take place in or in the vicinity of a river, stream, lake, or their tributaries. This includes rivers or streams that flow at least periodically or permanently through a bed or channel with banks

that support fish or other aquatic life and watercourses having a surface or subsurface flow that support or have supported riparian vegetation. A Section 1602 Streambed Alteration Agreement would be required if impacts to identified CDFW jurisdictional areas occur.

Porter Cologne Act

The California *Porter-Cologne Water Quality Control Act* gives the State very broad authority to regulate waters of the State, which are defined as any surface water or groundwater, including saline waters. The Porter-Cologne Act has become an important tool in the post SWANCC and Rapanos regulatory environment, with respect to the state’s authority over isolated and insignificant waters. Generally, any person proposing to discharge waste into a water body that could affect its water quality must file a Report of Waste Discharge in the event that there is no Section 404/401 nexus. Although “waste” is partially defined as any waste substance associated with human habitation, the Regional Board also interprets this to include fill discharged into water bodies.

Appendix C - Cultural and Paleontological Report

**PHASE 1 CULTURAL AND
PALEONTOLOGICAL RESOURCECS
REPORT FOR THE FARM MARKET
PROJECT, RIVERSIDE COUNTY,
CALIFORNIA**

Prepared for:

Farm Market

Parmjit Singh
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November 8, 2019

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NATIONAL ARCHAEOLOGICAL DATABASE INFORMATION

Authors: Sandra Pentney, Lauren DeOliveira and Kyle Knabb

Firm: Chambers Group, Inc.

Client/Project Proponent: Farm Market; Parmjit Singh

Report Date: November 8, 2019

Report Title: Phase 1 Cultural and Paleontological Resources Report for the Farm Market Project, Riverside County, California

Type of Study: Phase 1 Cultural and Paleontological Resources Study

New Sites: None

Updated Sites: None

USGS Quad: Sunnymead 7.5-minute quadrangle

Acreage: 2.0

Permit Numbers: N/A

Key Words: County of Riverside, City of Moreno Valley, Phase 1 Cultural and Paleontological Resources Study, CEQA, Negative Results.

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Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

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Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

SECTION 1.0 – INTRODUCTION

Chambers Group, Inc. (Chambers Group) has been contracted by Parjit Singh, owner of Farm Market, to complete a Phase 1 Cultural and Paleontological Resources Report for the Farm Market Project, which includes the construction of a gas station, canopy, commercial and restaurant space, a parking lot and landscaping. The approx. 2-acre area includes vacant land to the east and an already developed Farm Market building and parking lot to the west. The physical address of the project area is 14058 Redlands Blvd, City of Moreno Valley, Riverside County.

Chambers Group completed an archaeological literature review, archaeological and paleontological records search, Native American Sacred Land Files Search, and a field survey of the approx. 2-acre project area. This report outlines the archaeological and paleontological findings.

The following study has been conducted in accordance with the California Environmental Quality Act (CEQA).

1.1 REGULATORY FRAMEWORK

Work for this project was conducted in compliance with CEQA. The regulatory framework as it pertains to cultural resources under CEQA is detailed below.

Under the provisions of CEQA, including the CEQA Statutes (Public Resources Code [PRC] §§ 21083.2 and 21084.1), the CEQA Guidelines (Title 14 California Code of Regulations [CCR], § 15064.5), and PRC § 5024.1 (Title 14 CCR § 4850 et seq.), properties expected to be directly or indirectly affected by a proposed project must be evaluated for eligibility for listing in the California Register of Historical Resources (CRHR) (PRC § 5024.1).

The purpose of the CRHR is to maintain listings of the state’s historical resources and to indicate which properties are to be protected, to the extent prudent and feasible, from material impairment and substantial adverse change. The term *historical resources* includes a resource listed in or determined to be eligible for listing in the CRHR; a resource included in a local register of historical resources; and any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant (CCR § 15064.5[a]). The criteria for listing properties in the CRHR were expressly developed in accordance with previously established criteria developed for listing in the National Register of Historic Places (NRHP). The California Office of Historic Preservation (OHP 1995:2) regards “any physical evidence of human activities over 45 years old” as meriting recordation and evaluation.

1.1.1 California Register of Historic Resources

A cultural resource is considered “historically significant” under CEQA if the resource meets one or more of the criteria for listing on the CRHR. The CRHR was designed to be used by State and local agencies, private groups, and citizens to identify existing cultural resources within the state and to indicate which of those resources should be protected, to the extent prudent and feasible, from substantial adverse change. The following criteria have been established for the CRHR. A resource is considered significant if it:

1. is associated with events that have made a significant contribution to the broad patterns of California’s history and cultural heritage;
2. is associated with the lives of persons important in our past;
3. embodies the distinctive characteristics of a type, period, region, or method of construction, or

- represents the work of an important creative individual, or possesses high artistic values; or
4. has yielded, or may be likely to yield, information important in prehistory or history.

In addition to meeting one or more of the above criteria, historical resources eligible for listing in the CRHR must retain enough of their historic character or appearance to be able to convey the reasons for their significance. Such integrity is evaluated in regard to the retention of location, design, setting, materials, workmanship, feeling, and association.

Under CEQA, if an archeological site is not a historical resource but meets the definition of a “unique archeological resource” as defined in PRC § 21083.2, then it should be treated in accordance with the provisions of that section. A *unique archaeological resource* is defined as follows:

- An archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:
 - Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information
 - Has a special and particular quality, such as being the oldest of its type or the best available example of its type
 - Is directly associated with a scientifically recognized important prehistoric or historic event or person

Resources that neither meet any of these criteria for listing in the CRHR nor qualify as a “unique archaeological resource” under CEQA PRC § 21083.2 are viewed as not significant. Under CEQA, “A non-unique archaeological resource need be given no further consideration, other than the simple recording of its existence by the lead agency if it so elects” (PRC § 21083.2[h]).

Impacts that adversely alter the significance of a resource listed in or eligible for listing in the CRHR are considered a significant effect on the environment. Impacts to historical resources from a proposed project are thus considered significant if the project (1) physically destroys or damages all or part of a resource; (2) changes the character of the use of the resource or physical feature within the setting of the resource, which contributes to its significance; or (3) introduces visual, atmospheric, or audible elements that diminish the integrity of significant features of the resource.

SECTION 2.0 – PROJECT DESCRIPTION AND LOCATION

2.1 PROJECT DESCRIPTION

Chambers Group has been contracted by the Parmjit Singh of Farm Market, located in Riverside County, California, to complete a Phase 1 Cultural and Paleontological Resources Report for the Farm Market Project (Project), which includes the construction of a gas station, canopy, commercial and restaurant space along with a parking lot and landscaping. The project area is located at 14058 Redlands Blvd in Moreno Valley, Riverside County, California.

The purpose of this investigation is to assess the potential for significant archaeological or paleontological resources within the project area.

2.2 PROJECT LOCATION

The project area is located within the City of Moreno Valley, Riverside County, California. The approx. 2-acre project area is located at 14058 Redlands Blvd. The project area consists of vacant land on the east half of the property and a fully developed market and parking lot on the west half. The project area is bordered on the north by Alessandro Blvd, to the east by single family homes, to the west by Redlands Blvd and to the south by Kimberly Ave. Specifically, the project area is located on the U.S. Geological Survey (USGS) *Sunnymead* 7.5-minute quadrangle (Figure 1).

Regional access to the project area is provided via California State Route 60, City of Moreno Valley, Riverside County, California. Local access is provided by Redlands Blvd.

Figure 1: Project Location and Vicinity Map



Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

SECTION 3.0 – BACKGROUND

3.1 GEOLOGIC SETTING

The oldest fossils in California are from the Proterozoic Age, dating to 900 million years ago. However, no fossils from this Age are currently known to occur in Riverside County. It is thought that in this portion of Southern California, fossils earlier than the Jurassic Period may have been destroyed by the natural processes of metamorphism (geological changes in the rocks and soils). The oldest fossils actually found in Riverside County date from the Late Jurassic Period (150 million years ago). By the Late Cretaceous Period, at the end of the Age of Dinosaurs, fossils found include ammonites, clams and giant oysters (County of Riverside 2003).

The Cenozoic Era, the Age of Mammals, is divided into the Tertiary Period (65 million years to 2 million years) and the Quaternary Period, which includes the Pleistocene (2 million years to 10 thousand years) and the Holocene (10,000 years ago to present). The Tertiary Period records depositional events where continental sediments mixed with marine sediments. These important fluctuations in sea level are recorded in the Elsinore Fault Zone in western Riverside County and in the Salton Trough in eastern Riverside County. Riverside County has yielded notable finds of large fossils from the Tertiary Period including whales, sharks, primitive elephants and oreodonts, camels and horses (County of Riverside 2003).

During the Quaternary Epoch, Riverside County was affected by increased Pleistocene rainfall which filled basins and fault zones and turned depressions into lakes. The influx of new sediment buried remains of large and small animals. Deposition of fossiliferous sediment occurred along the margins of the Salton Sea and along the Colorado River. The climate changed drastically ten thousand years ago from the end of the wet Pleistocene to the very dry Holocene. The record of changing plants and animals is preserved as mummified samples in the nests built by pack rats (County of Riverside 2003).

3.2 PALEONTOLOGICAL ENVIRONMENT

Riverside County has an extensive record of fossil life. The record starts in Jurassic times, 150 million years ago, with diverse marine mollusks. The oldest Tertiary flora in Southern California is found east of Lake Elsinore and dates to around 60 million years ago. Fossils of 23 million-year-old oreodonts and camels, as well as camel tracks, were found in the Orocopia Mountains in central Riverside County (Bortugno and Spittler 1986; County of Riverside 2003).

Marine advances are recorded in Corona and the Salton Trough. Marine sandstones of the Imperial Formation in the Salton Trough are found as far northwest as Cabazon. Three million years ago, near the present Interstate 15/Highway 91 interchange, a white sand beach lapped at the edge of the Pacific Ocean. The subsequent Ice Ages left fossils of giant sloths, mammoths, camels and bison that were preyed upon by giant bear, American lion and sabercats (County of Riverside 2003).

3.3 PREHISTORY

It is generally believed that human occupation of southern California began at least 10,000 years before present (BP). The archaeological record indicates that between approximately 10,000 and 6,000 years BP, a predominantly hunting and gathering economy existed, characterized by archaeological sites containing numerous projectile points and butchered large animal bones. The most heavily exploited species were those species still alive today, such as deer. Although small animal bones and plant grinding tools are

rarely found within archaeological sites of this period, small game and vegetal foods were probably exploited (Wallace 1978).

The three major periods of prehistory for the greater Los Angeles Basin region have been refined by recent research using radiocarbon dates from archaeological sites in coastal southern California (Koerper and Drover 1983; Mason and Peterson 1994):

- Millingstone Period (6,000–1,000 B.C., or about 8,000–3,000 years ago)
- Intermediate Period (1,000 B.C.–A.D. 650, or 3,000–1,350 years ago)
- Late Prehistoric Period (A.D. 650–about A.D. 1800, or 1,350–200 years ago)

Around 6,000 years BP, a shift in focus from hunting toward a greater reliance on vegetal resources occurred. Archaeological evidence of this trend consists of a much greater number of milling tools (e.g., metates and manos) for processing seeds and other vegetable matter (Wallace 1978). This period, known to archaeologists as the Millingstone Period, was a long period of time characterized by small, mobile groups that likely relied on a seasonal round of settlements that included both inland and coastal residential bases. Seeds from sage and grasses, rather than acorns, provided calories and carbohydrates. Faunal remains from sites dating to this period indicate similar animals were hunted. Inland Millingstone sites are characterized by numerous manos, metates, and hammerstones. Shell middens are common at coastal Millingstone sites. Coarse-grained lithic materials, such as quartzite and rhyolite, are more common than fine-grained materials in flaked stone tools from this time. Projectile points are found in archaeological sites from this period, but they are far fewer in number than from sites dating to before 6,000 years BP. An increase in the size of groups and the stability of settlements is indicated by deep, extensive middens at some sites from this period (Wallace 1978).

In sites post-dating roughly 3,000 years BP, archaeological evidence indicates the reliance on both plant gathering and hunting continued but was more specialized and locally adapted to particular environments. Mortars and pestles were added to metates and manos for grinding seeds and other vegetable material. Chipped-stone tools became more refined and specialized, and bone tools were more common. During this period, new peoples from the Great Basin began entering southern California. These immigrants, who spoke a language of the Uto-Aztecan linguistic stock, seem to have displaced or absorbed the earlier population of Hokan-speaking peoples. The exact time of their entry into the region is not known; however, they were present in southern California during the final phase of prehistory. During this period, population densities were higher than before, and settlement became concentrated in villages and communities along the coast and interior valleys (Erlandson 1994; McCawley 1996). During the Intermediate Period, mortars and pestles appeared, indicating the beginning of acorn exploitation. Use of the acorn – a high-calorie, storable food source – probably allowed greater sedentism and facilitated an increased level of social organization. Large projectile points from archaeological sites of this period indicate that the bow and arrow, a hallmark of the Late Prehistoric Period, had not yet been introduced; and hunting was likely accomplished using the *atlatl* (spear thrower) instead. Settlement patterns during this time are not well understood. The semi-sedentary settlement pattern characteristic of the Late Prehistoric Period may have begun during the Intermediate Period, although territoriality may not yet have developed because of lower population densities. Regional subcultures also started to develop, each with its own geographical territory and language or dialect (Kroeber 1925; McCawley 1996; Moratto 1984). These were most likely the basis for the groups encountered by the first Europeans during the

eighteenth century (Wallace 1978). Despite the regional differences, many material culture traits were shared among groups, indicating a great deal of interaction (Erlandson 1994). The Late Prehistoric Period is better understood than earlier periods largely through ethnographic analogy made possible by ethnographic and anthropological research of the descendants of these groups in the late nineteenth and early twentieth centuries.

3.4 ETHNOGRAPHY AND ARCHAEOLOGY

The Project area was occupied by the Luiseno and Cahuilla people. Following is a brief ethnographic and archaeological summary of the Luiseno and Cahuilla.

3.4.1 Luiseno

When the Spanish arrived in southern California, the Project area was occupied by Takic speaking Native Americans known to the Spanish as the Luiseño. Luiseño territory is thought to have comprised some 1,500 square miles (3,890 square kilometers) of coastal and interior southern California (White 1963). The Luiseño speak a language that is placed within the Cupan group of the Takic family of the Uto-Aztecan stock (Shipley 1978) also known as Southern California Shoshonean (Kroeber 1925).

Permanent houses of the Luiseño were normally covered with bark, tule, or stems and then covered with a layer of earth. Permanent structures were often semi-subterranean and built over an excavated area sometime up to 2 feet deep (Kroeber 1925). The Luiseño had separate village groups, each strategically located within a diverse ecological zone that allowed for fishing, hunting, and gathering. Villages were normally sheltered on the sides of slopes or in caves or canyons near fresh water sources (Bean and Shippek 1978).

The Luiseño were predominately a hunter-gatherer society. The Luiseño exploited deer, rabbit, squirrels and birds like quail, doves and ducks. Luiseño living along the coastal regions often fished and gathered shellfish such as abalone. Acorns were considered a main staple of the Luiseño. Villages were located near fresh water sources for drinking water but also to facilitate the processing of acorns by a technique called leaching. Manzanita, sunflower, chia, lemon berry and prickly pear were also high on the list of gathered subsistence. (Bean and Shippek 1978).

Kroeber (1925) estimated a population of only 5,000 pre-contact Luiseño. White (1963) and Shippek (1977) estimated that, at the time of Spanish contact, there were on the order of 50 Luiseño rancherias with an average population of some 200 people, for a total Luiseño population of about 10,000. This number rapidly decreased after contact, with the introduction of new diseases for which the native population lacked immunity.

3.4.2 Cahuilla

The project area currently falls within the ethnographic territory of the Cahuilla, whose ancestors may have entered this region of Southern California approximately 3,000 years ago (Moratto 1984). The Cahuilla ancestral territory is located near the geographic center of Southern California and varied greatly topographically and environmentally, ranging from forested mountains to desert areas. Natural boundaries such as the Colorado Desert provided the Cahuilla separate territory from the neighboring Mojave, Ipai, and Tipai. In turn, mountains, hills, and plains separated the Cahuilla from the adjacent Luiseno, Gabelielino and the Serrano (Bean 1978).

The Cahuilla relied heavily on the exploitation and seasonal availability of faunal and floral resources through a pattern of residential mobility that emphasized hunting and gathering. Important floral species used in food, for manufacturing of products, and/or for medicinal uses primarily included acorns, mesquite and screw beans, piñon nuts, and various cacti bulbs (Bean 1978). Coiled-ware baskets were common and used for a variety of tasks including food preparation, storage, and transportation (Bean 1978).

Networks of trails linked villages and functioned as hunting, trading, and social conduits. Trade occurred between the Cahuilla and tribes such as the Gabrieleno as far west as Santa Catalina and the Pima as far east as the Gila River. Trades of both goods and technologies were frequently exchanged between the Cahuilla and nearby Serrano, Gabrielino, and Luiseño cultural groups (Bean 1978).

The Cahuilla are believed to have first come into contact with Europeans prior to the Juan Bautista de Anza expedition in 1774; however, little direct contact was established between the Cahuilla and the Spanish except for those baptized at the Missions San Gabriel, San Luis Rey, and San Diego (Bean 1978). Following the establishment of several *asistencias* near the traditional Cahuilla territories, many Spanish cultural forms — especially agriculture and language — were adopted by the Cahuilla people (Bean 1978; Lech 2012).

Through the Rancho and American periods, the Cahuilla continued to retain their political autonomy and lands despite more frequent interactions with European-American immigrants. In 1863, a large number of the population were killed by a sweeping smallpox epidemic that affected many of the tribal groups in Southern California. The first reservations established in Riverside County ca. 1865 saw many of the Cahuilla remaining on their traditional lands. After 1891, however, all aspects of the Cahuilla economic, political, and social life were closely monitored by the Federal Government; a combination of missionaries and government schools drastically altered the Cahuilla culture (Bean 1978).

3.5 HISTORY

The first significant European settlement of California began during the Spanish Period (1769 to 1821) when 21 missions and four presidios were established between San Diego and Sonoma. Although located primarily along the coast, the missions dominated economic and political life over the greater California region. The purpose of the missions was primarily for political control and forced assimilation into Spanish society and Catholicism of the Native American population, along with economic support to the presidios (Castillo 1978).

In the 1700s, due to pressures from other colonizers (Russians, French, British), New Spain decided that a party should be sent north with the idea of founding both military presidios and religious missions in Alta California to secure Spain's hold on its lands. The aim of the party was twofold. The first was the establishment of presidios, which would give Spain a military presence within its lands. The second was the establishment of a chain of missions along the coast slightly inland, with the aim of Christianizing the native population. By converting the native Californians, they could be counted as Spanish subjects, thereby bolstering the colonial population within a relatively short time. (Lech 2012)

The party was led by Gaspar de Portolá and consisted of two groups; one would take an overland route, and one would go by sea. All parties were to converge on San Diego, which would be the starting point for the chain of Spanish colonies. What became known as the Portolá Expedition set out on March 24, 1769. Portolá, who was very loyal to the crown and understood the gravity of his charge, arrived in what would become San Diego on July 1, 1769. Here, he immediately founded the presidio of San Diego. Leaving one

group in the southern part of Alta California, Portolá took a smaller group and began heading north to his ultimate destination of Monterey Bay. Continuing up the coast, Portolá established Monterey Bay as a Spanish possession on June 3, 1770, although it would take two expeditions to accomplish this task. Having established the presidios at San Diego and Monterey, Portolá returned to Mexico. During the first four years of Spanish presence in Alta California, Father Junípero Serra, a member of the Portolá expedition and the Catholic leader of the new province, began establishing what would become a chain of 21 coastal missions in California. The first, founded concurrently at San Diego with the presidio, was the launching point for this group. During this time, four additional missions (San Carlos Borromeo de Carmelo, San Antonio de Padua, San Gabriel Arcángel, and San Luis Obispo de Tolosa) were established (Lech 2012).

The Mexican Period (1821-1848) began with the success of the Mexican Revolution in 1821, but changes to the mission system were slow to follow. When secularization of the missions occurred in the 1830s, their vast land holdings in California were divided into large land grants called ranchos. The Mexican government granted ranchos throughout California to Spanish and Hispanic soldiers and settlers (Castillo 1978; Cleland 1941).

In 1848, The Treaty of Guadalupe Hidalgo ended the Mexican-American War and marked the beginning of the American Period (1848 to present). The discovery of gold that same year sparked the 1849 California Gold Rush, bringing thousands of miners and other new immigrants to California from various parts of the United States, most of whom settled in the north. For those settlers who chose to come to southern California, much of their economic prosperity was fueled by cattle ranching rather than by gold. This prosperity, however, came to a halt in the 1860s as a result of severe floods and droughts, as well as legal disputes over land boundaries, which put many ranchos into bankruptcy (Castillo 1978; Cleland 1941).

Moreno Valley was not settled until the late 1880s. Prior to that, Moreno Valley served as a pass through for settlers traveling from northern Mexico to the various mission settlements via the Anza trail. The trail passes through Moreno Valley, Perris Valley and the San Jacinto Valley. Moreno Valley began with the founding of the Moreno and Alessandro settlements in the late 1880s. The Moreno settlement was established around the present-day intersection of Redlands Blvd and Alessandro Blvd. The settlement of Alessandro was originally within the boundary of present-day March Air Reserve Base (City of Moreno Valley 2006).

Grains and fruit were established early on to encourage settlement of the area and a water reservoir and aqueduct were built by Frank Brown in 1891 to deliver water to the settlement of Moreno. The settlers of the valley wanted to name the town after Mr. Brown, but he declined. So, the town was named “Moreno”, the Spanish word for brown. Unfortunately, a legal dispute over water rights and a significant drought stopped the flow of water to the settlement shortly after the aqueduct was built. Some farmers turned to dry farming, but many farmers moved out of the valley as their crops failed (City of Moreno Valley 2006; Ellis 2013).

Well drilling along with the construction of March Air Force Base in 1918 sparked an increase in new development. Expansion of the Air Force Base in the 1940s allowed the communities of Edgemont, Sunnymead, and Moreno to be constructed within the valley. In the 1950s, the Eastern Municipal Water District included Moreno Valley in its service area providing a more reliable water source for agricultural and residential development. The community grew at a rapid rate. In 1984, Moreno Valley was incorporated, and population reached over 118,000 residents in 1990. Moreno Valley is the second largest

city in Riverside County, encompassing 51.4 square miles and currently has a population of approximately 209,000 residents (City of Moreno Valley 2006).

SECTION 4.0 – SOURCES CONSULTED

A records search was conducted on October 10, 2019, by Chambers Group Archaeologist, Lauren DeOliveira, at the Eastern Information Center (EIC) located at the University of California, Riverside (Appendix A). The records search provided information on all documented cultural resources and previous archaeological investigations within 0.5-mile of the project area. Resources consulted during the records search included the National Register of Historic Places (NRHP), California Historical Landmarks, California Points of Historical Interest, and the California State Historic Resources Inventory. Additionally, historic aerial photographs of the project area were reviewed in-house to determine the presence of any historic structures. Results of the records search and additional research are detailed below.

4.1 REPORTS WITHIN THE STUDY AREA

Based upon the records search conducted at the EIC, 11 cultural resource studies have been completed previously within the 0.5-mile records search radius. None of the 11 previous studies were within the current project area. Details of these studies are found in Table 1.

Table 1: Previous Cultural Resource Studies within Study Area

Report Number	Year	Author	Title	Resources
RI-00182	1975	Richard A. Weaver	Environmental Impact Evaluation: Archaeology of Brodiaea Avenue, PI 984, Water Systems Addition, Riverside County, California	33-000857
RI-01843	1984	Scientific Resource Surveys, Inc.	Cultural Resource Survey Report on Wolfskill Ranch	33-000012, 33-000021, 33-000202, 33-000419, 33-000420, 33-000421, 33-000464, 33-000530, 33-000531, 33-000532, 33-000533, 33-000534, 33-000535, 33-000536, 33-000537, 33-000538, 33-000539, 33-000540, 33-000541, 33-000542, 33-000543, 33-000544, 33-000608, 33-000609,

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Report Number	Year	Author	Title	Resources
				33-000610, 33-000715, 33-002829, 33-002867, 33-002950, 33-002951, 33-002952, 33-002953, 33-002954, 33-002955, 33-002956, 33-002957, 33-002958, 33-002959, 33-002960, 33-002961, 33-002962, 33-002963, 33-002964, 33-002965, 33-002966, 33-002967, 33-002968, 33-002969, 33-002993, 33-002994, 33-002995, 33-002996
RI-01893	1984	Salpas, Jean	An Archaeological Assessment of Parcel 20223	N/A
RI-02171	1987	McCarthy, Daniel	Cultural Resources Inventory for the City of Moreno Valley, Riverside County, California	33-000361, 33-000395, 33-000497, 33-000857, 33-000860, 33-001063, 33-001064, 33-003223, 33-003224, 33-003225, 33-003226, 33-003227, 33-003228, 33-003229, 33-003230, 33-003231, 33-003232, 33-003233,

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Phase 1 Cultural and Paleontological Resources Report for the Farm Market Project,
Riverside County, California

Report Number	Year	Author	Title	Resources
				33-003234, 33-003235, 33-003236, 33-003237, 33-003238, 33-003239, 33-003240, 33-003241, 33-003242, 33-003243, 33-003244, 33-003245, 33-003246, 33-003247, 33-003248, 33-003249, 33-003250, 33-003254, 33-003258, 33-003259, 33-003260, 33-003261, 33-003262, 33-003263, 33-003264, 33-003265, 33-003266, 33-003267, 33-003268, 33-003269, 33-003270, 33-003271, 33-003272, 33-003273, 33-003304, 33-003305, 33-003306, 33-003341, 33-003342, 33-003343, 33-003344, 33-003345, 33-003346, 33-003347, 33-003351, 33-003352, 33-003353

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

*Phase 1 Cultural and Paleontological Resources Report for the Farm Market Project,
Riverside County, California*

Report Number	Year	Author	Title	Resources
RI-08368	2009	McKenna, Jeanette A.	Addendum Study: A Phase I Cultural Resources Survey of Two Alternative Sewer Pipeline Alignments for the Moreno Valley Unified School District Sites, City of Moreno Valley, Riverside County, California.	33-001064, 33-014952
RI-08681	2011	Jay K. Sander	Archaeological Survey Report for Southern California Edison's Grid Reliability and Maintenance Project: Moreno Valley, Riverside County, California	N/A
RI-08802	2012	Bai "Tom" Tang, Michael Hogan, Deirdre Encarnacion, and Daniel Ballester	Phase I Archaeological Assessment: Moreno Master Drainage Plan Revision	N/A
RI-09080	2014	Bai "Tom" Tang, Michael Hogan, Deirdre Encarnacion, and Daniel Ballester	Phase I Archaeological Assessment Tentative Tract Map No.36739 City of Moreno Valley, Riverside County, California	N/A
RI-09225	2014	Michael Hogan	Historical/Archaeological Resources Investigation; Tentative Tract Map 33222; City of Moreno Valley, Riverside County, California	N/A
RI-09667	2016	Alexis Green	Addendum to FCC Form 620: Maltby/EnSite #25566, 14058 Redlands Blvd., Moreno Valley, Riverside County. CA 92555, EBI Project # 6115002992, FCC E-106 #006956057, CASHPO:	N/A
RI-10698	2015	Gabriel Ocampo	Cultural Resources Survey Maltby / Ensite #25566 (284949) 14058 Redlands Boulevard, Moreno Valley, Riverside County, California 92555	33-002777

4.2 PREVIOUSLY RECORDED CULTURAL RESOURCES WITHIN THE STUDY AREA

Based upon the records search conducted at the EIC, 2 previously recorded cultural resources were recorded within the 0.5-mile records search radius, as shown in Table 2. None of the previously recorded resources are within the project area. Additionally, historic aerial photographs and topographic maps of the project area, dating to the early 1960s, were reviewed and indicated that the vacant area in the east half of the project area did not contained any structures or buildings.

Table 2: Previously Recorded Cultural Resources within the Study Area

Primary Number	Trinomial	Resource Name	Site Description
P-33-002776	CA-RIV-2776	N/A	Prehistoric milling slicks
P-33-002777	CA-RIV-2777	N/A	Prehistoric milling slicks

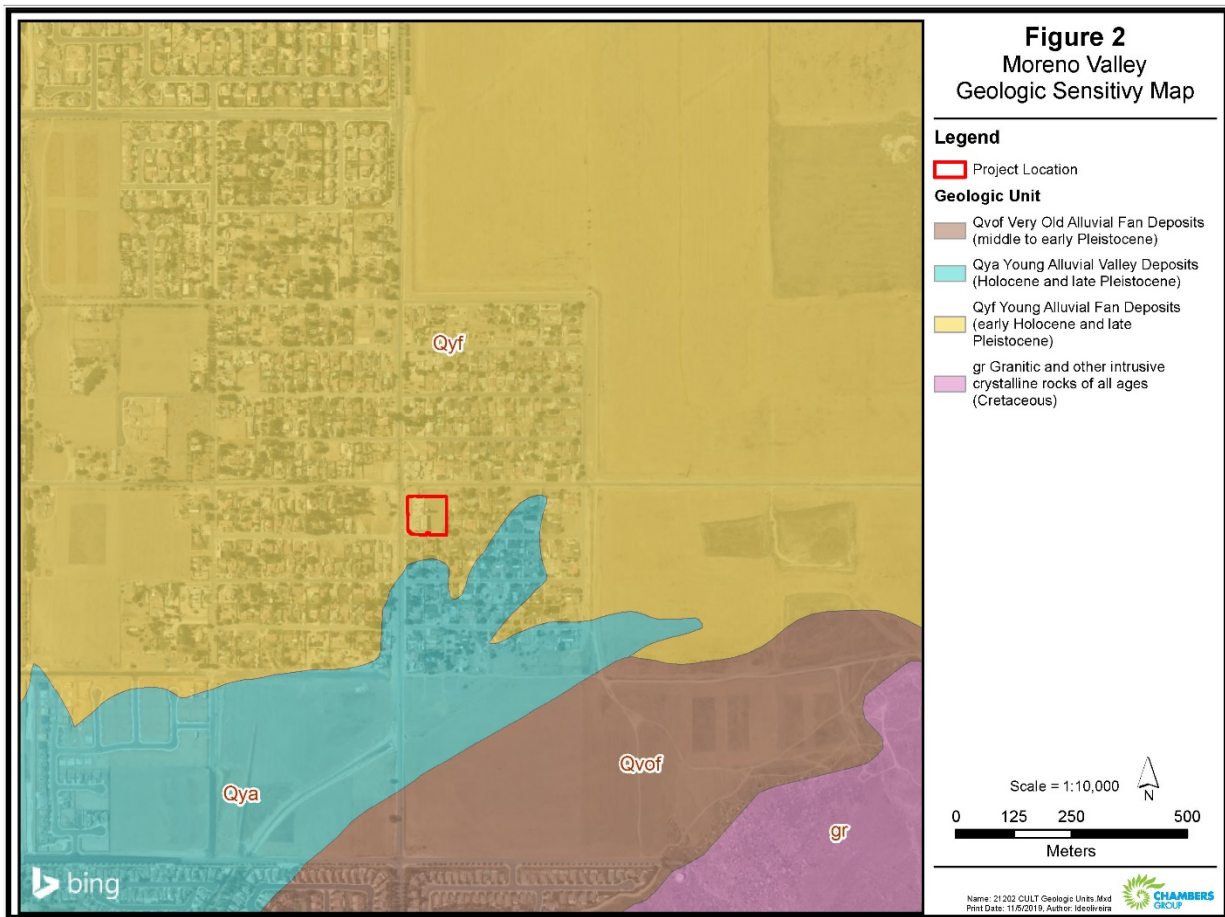
4.3 PALEONTOLOGICAL RECORD SEARCH

Prior to the survey of the project area, a paleontological resources literature and records search was conducted by staff at the Western Science Center on November 8, 2019. This search included the entire project area with an additional 1-mile radius. This search included a review of geological maps covering the project footprint to determine the fossil-bearing rock units underlying the project area. The objective of this records search was to identify fossil specimens or unique geological formations reported within the project area or surrounding 1-mile vicinity. Research also included a review of published and unpublished reports relevant to the paleontology and geology of the project area.

The results indicate the geologic units underlying the project area are entirely of young alluvial fan deposits from the Late Pleistocene to Holocene period. Pleistocene alluvial units are considered to be of high paleontological potential.

The Western Science Center does not have localities within the project area or within a 1 mile radius but does have numerous fossil localities within 2 miles that presented paleontological finds within similar alluvial mapped units including those associated with the Aldi Distribution Project in Moreno Valley. Fossils recovered from this project include specimen associated with large Pleistocene fauna including Giant Ground Sloth (Appendix C).

Figure 2: Geologic Units within Project Area



Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

4.4 NATIVE AMERICAN HERITAGE COMMISSION SACRED LAND FILE SEARCH

On October 2, 2019, Chambers Group requested that the Native American Heritage Commission (NAHC) conduct a search of its Sacred Lands File to determine if cultural resources significant to Native Americans have been recorded in the project footprint and/or buffer area. On October 16, 2019, Chambers Group received a response from NAHC stating that the search of its Sacred Lands File did not indicate the presence of Native American cultural resources within the project area or surrounding vicinity. The NAHC provided their list of Native American tribal governments to contact, if the City of Moreno Valley chooses, which included representative from 14 tribes. The 14 Native American tribes identified include the Agua Caliente Band of Cahuilla Indians, Augustine Band of Cahuilla Mission Indians, Cabazon Band of Mission Indians, Cahuilla Band of Indians, Los Coyotes Band of Cahuilla and Cupeno Indians, Morongo Band of Mission Indians, Pechanga Band of Luiseno Indians, Ramona Band of Cahuilla, San Fernando Band of Mission Indians, San Manuel Band of Mission Indians, Santa Rosa Band of Cahuilla Indians, Serrano Nation of Mission Indians, Soboba Band of Luiseno Indians, and Torres-Martinez Desert Cahuilla Indians. Because the City of Moreno Valley is leading the Assembly Bill (AB) 52 consultation process, if required, Chambers Group did not send consultation letters to the affiliated tribes. A copy of the NAHC Sacred Land Files Search and contact list is included in Appendix B.

SECTION 5.0 – FIELD METHODS

Chambers Group survey teams are trained in established field methods for cultural resources deemed appropriate for each project. Cultural materials encountered may include prehistoric artifacts (e.g., flaked stone tools, tool-making debris, stone milling tools), historic-period artifacts (e.g., metal, glass, ceramics), sediment discoloration that might indicate the presence of a cultural midden, as well as depressions and other features indicative of the former presence of structures or buildings (e.g., post holes, foundations).

On October 10, 2019, Chambers Group archaeologist Lauren DeOliveira, completed a pedestrian level survey of the vacant portion of the project site and a reconnaissance level survey of the developed portion of the site. The pedestrian level survey in the eastern half of the site was completed using transects spaced at no more than 15 meters apart.

The archaeologist examined exposed ground surface for artifacts (e.g., flaked stone tools, tool-making debris, milling tools, ceramics), ecofacts (e.g., marine shell and bone), soil discoloration that might indicate the presence of a cultural midden, and features indicative of the former presence of structures or buildings (e.g., standing exterior walls, postholes, foundations) or historic debris (e.g., metal, glass, ceramics). Ground disturbances such as burrows were visually inspected for both cultural resources and paleontological resources.

SECTION 6.0 – RESULTS OF ARCHAEOLOGICAL AND PALEONTOLOGICAL INVESTIGATIONS

The project area is located within the City of Moreno Valley, Riverside County, California. The approx. 2.0-acre project area is located at 14058 Redlands Blvd. The project area is disturbed and highly developed in the western half. An existing Farm Market building with concrete driveway, parking lot, and cell phone tower antenna are within the western half of the project area. The eastern half of the property is a vacant lot that has been recently disked and cleared of weeds. Concrete, wood and modern debris was observed. Overall ground visibility was high in the eastern half of the property (95%). Soil in the area primarily consisted of light brown silty clay.

No historic, prehistoric resources or paleontological resources were identified as a result of the field survey.

SECTION 7.0 – STUDY FINDINGS AND RECOMMENDATIONS

Chambers Group completed an archaeological and paleontological literature review, records search, Native American Sacred Land Files Search, and a field survey of 2-acre project location. The work was performed under Chambers Group’s contract with Parmjit Singh of Farm Market. The main goal of this archaeological and paleontological investigation was to gather and analyze information needed to determine if the project could impact cultural or paleontological resources.

7.1 PALEONTOLOGICAL RESOURCES STUDY FINDINGS AND RECOMMENDATIONS

The results indicate the geologic units underlying the project area are entirely of young alluvial fan deposits from the Late Pleistocene to Holocene period. Pleistocene alluvial units are considered to be of high paleontological potential.

The Western Science Center does not have localities within the project area or within a 1-mile radius but does have numerous fossil localities within 2 miles that presented paleontological finds within similar alluvial mapped units including those associated with the Aldi Distribution Project in Moreno Valley. Any fossils recovered from the project area would be considered scientifically significant.

Since the young alluvial fan deposits of the Late Pleistocene to Holocene are considered paleontologically sensitive, it is recommended that a qualified paleontologist be retained to spot check construction excavations that would impact those units. The paleontologist will be able to recommend increasing or decreasing monitoring activities based on the sub-surface findings.

7.2 CULTURAL RESOURCES STUDY FINDINGS AND RECOMMENDATIONS

The NAHC Sacred Lands File search did not identify any sacred sites or tribal cultural resources within the search radius. The cultural record search did not identify any previous cultural resources studies of the project area and no previously recorded archaeological resources were identified within the project boundary. No cultural resources were identified within the project area as a result of the record search and field survey. The lack of resources identified in the record search and field survey is not indicative of an absence of resources.

Because the Project is in an area inhabited both prehistorically and historically, as well as being on an alluvial fan, there is the potential to encounter buried archaeological deposits. A Secretary of the Interior qualified archaeologist is recommended to spot check construction excavations within undisturbed soil to determine the presence or absence of cultural resources. The qualified archaeologist will then be able to recommend increasing or decreasing monitoring activities based on sub-surface findings.

In the event of an unanticipated cultural resource(s) discovery, the following guidelines are recommended.

In the event that unanticipated cultural resources are encountered during ground-disturbing activities, a qualified archaeologist shall be contacted to assess the significance of the find. In the case that previously undiscovered resources are identified during construction activities, excavations within 50 feet of the find shall be temporarily halted or diverted. If the qualified archaeologist determines the find to be significant, construction activities can resume after the find is assessed and mitigated accordingly. It is also recommended that further recordation and documentation of this Project and the initial findings be completed prior to any ground-disturbing construction activities.

In the event that the discovery of human remains occurs during ground-disturbing activities, the following regulations must be followed. California State law (California Health and Safety Code 7050.5) require a defined protocol if human remains are discovered in the state of California regardless if the remains are modern or archaeological. Upon discovery of human remains, all work within a minimum of 200 feet of the remains must cease immediately, and the County Coroner must be notified. The appropriate land manager/owner or the site shall also be notified of the discovery. If the remains are located on federal lands, the federal land manager(s), federal law enforcement, and/or federal archaeologist should also be notified.

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Figure 3: Overview of project area. Looking southwest.



Figure 4: Overview of project area. Looking northwest.



Figure 5: Overview of project area. Looking southeast.



Figure 6: Overview of project area. Looking south.



Figure 7: Overview of project area. Looking northeast.



Figure 8: Overview of soils in project area. Looking east.

SECTION 8.0 – REFERENCES

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APPENDIX A – CONFIDENTIAL RECORD SEARCH RESULTS

APPENDIX B – NAHC SACRED LAND FILES SEARCH

NATIVE AMERICAN HERITAGE COMMISSION
Cultural and Environmental Department
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691 Phone: (916) 373-3710
Email: nahc@nahc.ca.gov
Website: <http://www.nahc.ca.gov>



October 16, 2019

Lauren DeOliveira
Chambers Group, Inc.

VIA Email to: ldoliveira@chambersgroupinc.com

RE: 21202 Farm Market Cultural and Paleo Phase 1 Project, Riverside County

Dear Ms. DeOliveira:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. However, the absence of specific site information in the SLF does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance, we can assure that our lists contain current information. If you have any questions or need additional information, please contact me at my email address: Andrew.Green@nahc.ca.gov.

Sincerely,

A handwritten signature in blue ink that reads "Andrew Green".

Andrew Green
Staff Services Analyst

Attachment

Native American Heritage Commission
Native American Contact List
Riverside County
10/16/2019

1.b

Agua Caliente Band of Cahuilla Indians

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5401 Dinah Shore Drive
Palm Springs, CA, 92264
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Fax: (760) 699-6924
ACBCI-THPO@aguacaliente.net

Cahuilla

Los Coyotes Band of Cahuilla and Cupeño Indians

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Warner Springs, CA, 92086-0189
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Fax: (760) 782-0712

Cahuilla

Agua Caliente Band of Cahuilla Indians

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Cahuilla

Morongo Band of Mission Indians

Robert Martin, Chairperson
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Banning, CA, 92220
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Fax: (951) 922-8146
dtorres@morongo-nsn.gov

Cahuilla
Serrano

Augustine Band of Cahuilla Mission Indians

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Cahuilla

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Cahuilla
Serrano

Cabazon Band of Mission Indians

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Cahuilla

Pechanga Band of Luiseno Indians

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Temecula, CA, 92593
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Luiseno

Cahuilla Band of Indians

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Cahuilla

Pechanga Band of Luiseno Indians

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Luiseno

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed 21202 Farm Market Cultural and Paleo Phase 1 Project, Riverside County.

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

**Native American Heritage Commission
Native American Contact List
Riverside County
10/16/2019**

1.b

Ramona Band of Cahuilla

Joseph Hamilton, Chairperson
P.O. Box 391670
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Cahuilla

**Santa Rosa Band of Cahuilla
Indians**

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nsn.gov

Cahuilla

Ramona Band of Cahuilla

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Cahuilla

**Serrano Nation of Mission
Indians**

Wayne Walker, Co-Chairperson
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serranonation1@gmail.com

Serrano

**San Fernando Band of Mission
Indians**

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ddyocum@comcast.net

Kitanemuk
Vanyume
Tataviam

**Serrano Nation of Mission
Indians**

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Serrano

**San Manuel Band of Mission
Indians**

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26569 Community Center Drive
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lclauss@sanmanuel-nsn.gov

Serrano

**Soboba Band of Luiseno
Indians**

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jontiveros@soboba-nsn.gov

Cahuilla
Luiseno

**Santa Rosa Band of Cahuilla
Indians**

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Cahuilla

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jontiveros@soboba-nsn.gov

Cahuilla
Luiseno

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

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Native American Heritage Commission
Native American Contact List
Riverside County
10/16/2019

1.b

**Torres-Martinez Desert Cahuilla
Indians**

Michael Mirelez, Cultural
Resource Coordinator
P.O. Box 1160
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mmirelez@tmdci.org

Cahuilla

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

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This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed 21202 Farm Market Cultural and Paleo Phase 1 Project, Riverside County.

**APPENDIX C – WESTERN SCIENCE CENTER PALEONTOLOGICAL RECORD SEARCH
RESULTS**

 **WESTERN SCIENCE CENTER**

Chambers Group
Lauren DeOliveira
5 Hutton Centre Dr.
Santa Ana, CA 92707

November 8, 2019

Dear Ms. DeOliveira,

This letter presents the results of a record search conducted for the Farm Market Project in the city of Moreno Valley, Riverside County, California. The project site is located north of Kimberly Avenue, south Alessandro Boulevard, and east of Redlands Boulevard in section 13 on the Sunnymead, CA USGS 7.5 minute quadrangle.

The geologic units underlying this project are mapped entirely as young alluvial fan deposits dating from the Late Pliocene to Holocene period (Morton & Matti, 1997). Pleistocene alluvial units are considered to be of high paleontological sensitivity. The Western Science Center does not have localities within the project area or within a 1 mile radius, but does have numerous fossil localities within 2 miles that presented paleontological finds within similar alluvial mapped units including those associated with the Aldi Distribution Project in Moreno Valley. Fossils recovered from this project include specimen associated with large Pleistocene fauna including Giant Ground Sloth.

Any fossils recovered from the project area would be scientifically significant. Excavation activity associated with development of the project area would impact the paleontologically sensitive Late Pleistocene units and it is the recommendation of the Western Science Center that a paleontological resource mitigation program be put in place to monitor, salvage, and curate any recovered fossils associated with the current study area.

If you have any questions, or would like further information about the Aldi Distribution Project, please feel free to contact me at dradford@westerncentermuseum.org

Sincerely,




Darla Radford
Collections Manager

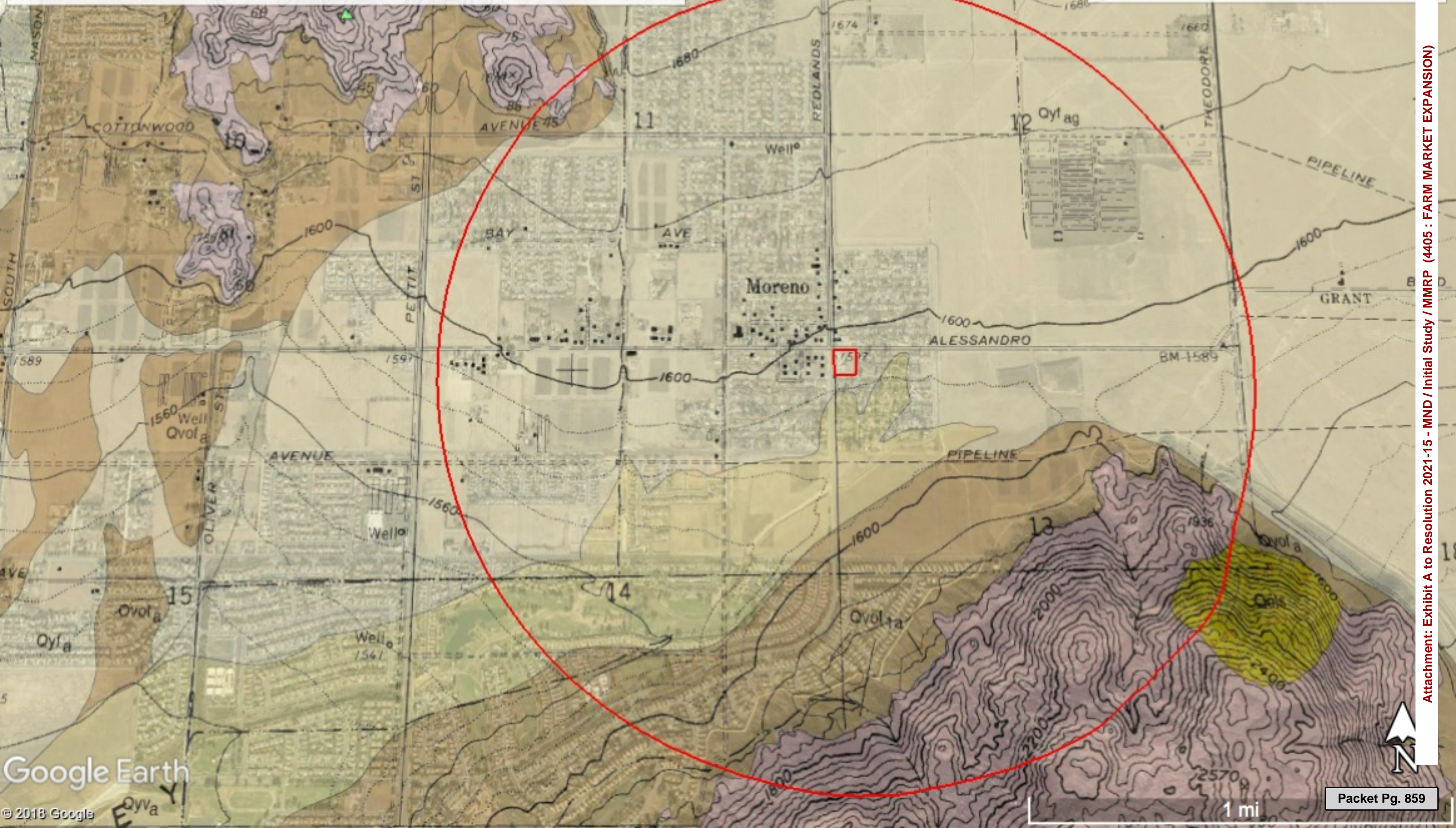
Farm Market Project

Project area, one mile radius, geologic mapping and any WSC fossil localities.

Legend

-  Project Area and One Mile Radius

1.b



Google Earth

© 2018 Google

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Appendix D - Energy Analysis



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p. (602) 774-1950

CA Office
1197 Los Angeles Avenue, Ste C-256
Simi Valley, CA 93065
p. (805) 426-4477

www.mdacoustics.com

February 24, 2021

Ms. Julie Gilbert
ELMT Consulting, Inc.
2201 N Grand Ave, Ste #10098
Santa Ana, CA 92711

**Subject: Farm Market Improvement Development– CEQA Energy Review,
City of Moreno Valley, CA**

Dear Mr. Gilbert:

MD Acoustics, LLC (MD) has completed a CEQA energy review for the proposed Farm Market Improvement development, located at the southeast corner of Redlands Boulevard and Alessandro Boulevard, in the City of Moreno Valley, CA. The proposed project currently has an existing Farm Market store and cell tower and proposes to add the following:

- 2,000 square feet of commercial building;
- 2,500 square feet of restaurant; and
- 1,129.4 square feet of Convenience Market/Gas station with 8 vehicle fueling pumps.

1.0 Existing Energy Conditions

Overview

California's estimated annual energy use as of 2019 included:

- Approximately 279,402 gigawatt hours of electricity;¹
- Approximately 2,154,030 million cubic feet of natural gas per year²; and
- Approximately 23.2 billion gallons of transportation fuel (for the year 2015)³.

As of 2018, the year of most recent data currently available by the United States Energy Information Administration (EIA), energy use in California by demand sector was:

- Approximately 39.1 percent transportation;
- Approximately 23.5 percent industrial;
Approximately 18.3 percent residential; and

¹California Energy Commission. Energy Almanac. Electricity Consumption by Planning Area [Online] November, 2020. <http://www.ecdms.energy.ca.gov/elecbyplan.aspx>

²Natural Gas Consumption by End Use. U.S. Energy Information Administration. [Online] November, 2020. https://www.eia.gov/dnav/ng/ng_cons_sum_dcu_SCA_a.htm.

³California Energy Commission. Revised Transportation Energy Demand Forecast 2018-2030. [Online] April 19, 2018. <https://www.energy.ca.gov/assessments/>

- Approximately 19.2 percent commercial.⁴

California's electricity in-state generation system generates approximately 200,475 gigawatt-hours each year. In 2019, California produced approximately 68 percent of the electricity it uses; the rest was imported from the Pacific Northwest (approximately 14 percent) and the U.S. Southwest (approximately 18 percent). Natural gas is the main source for electricity generation at approximately 46.54 percent of the total in-state electric generation system power as shown in Table 1 below.

Table 1: Total Electricity System Power (California 2019)¹

Fuel Type	California In-State Generation (GWh)	Percent of California In-State Generation	North-west Imports (GWh)	South-west Imports (GWh)	California Power Mix (GWh)	Percent California Power Mix
Coal	248	0.12%	219	7,765	8,233	2.96%
Natural Gas	86,136	42.97%	62	8,859	95,057	34.23%
Oil	36	0.02%	0	0	36	0.01%
Other (Petroleum Coke/Waste Heat)	411	0.20%	0	11	422	0.15%
Nuclear	16,163	8.06%	39	8,743	24,945	8.98%
Large Hydro	33,145	16.53%	6,387	1,071	40,603	14.62%
Unspecified Sources of Power	0	0.00%	6,609	13,767	20,376	7.34%
Renewables	64,336	32.09%	10,615	13,081	88,032	31.70%
Biomass	5,851	2.92%	903	33	6,787	2.44%
Geothermal	10,943	5.46%	99	1,269	13,260	4.77%
Small Hydro	5,349	2.67%	292	4	5,646	2.03%
Solar	28,513	14.22%	282	5,295	34,090	12.28%
Wind	13,680	32.09%	10,615	13,081	28,249	10.17%
Total	200,475	100.00%	23,930	53,299	277,704	100.00%

Notes:

¹Source: California Energy Commission. 2019 Total System Electric Generation. <https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/2019-total-system-electric-generation>

A summary of and context for energy consumption and energy demands within the State is presented in "U.S. Energy Information Administration, California State Profile and Energy Estimates, Quick Facts" excerpted below:

- California was the seventh-largest producer of crude oil among the 50 states in 2018, and, as of January 2019, it ranked third in oil refining capacity.
- California is the largest consumer of jet fuel among the 50 states and accounted for one-fifth of the nation's jet fuel consumption in 2018
- California's total energy consumption is second-highest in the nation, but, in 2018, the state's per capita energy consumption was the fourth-lowest, due in part to its mild climate and its energy efficiency programs.
- In 2018, California ranked first in the nation as a producer of electricity from solar, geothermal, and biomass resources and fourth in the nation in conventional hydroelectric power generation.

⁴U.S. Energy Information Administration. California Energy Consumption by End-Use Sector. California State Profile and Energy Estimates.[Online] November 2020. <https://www.eia.gov/state/?sid=CA#tabs-2>

- In 2018, large- and small-scale solar PV and solar thermal installations provided 19% of California’s net electricity generation⁵.

As indicated above, California is one of the nation’s leading energy-producing states, and California per capita energy use is among the nation’s most efficient. Given the nature of the proposed project, the remainder of this discussion will focus on the three sources of energy that are most relevant to the project—namely, electricity and natural gas for building uses, and transportation fuel for vehicle trips associated with the proposed project.

Electricity

Electricity would be provided to the project by Moreno Valley Electric Utility (MVU). MVU serves over 6,500 customers within its service area. MVU provides customer service, meter reading, billing, emergency response and other services to new commercial and residential developments located within Moreno Valley Electric Utility’s service area. MVU is a public power utility: owned and operated by the community, locally controlled and managed on a not-for-profit basis. Public power utilities are public service entities and do not serve shareholders. This gives MVU the ability to tailor operations and services to the needs of the local community. Success is measured by how much money stays within the community, not by how much in dividends stockholders receive.⁶ MVU derives electricity from varied energy resources including: fossil fuels, hydroelectric generators, nuclear power plants, geothermal power plants, solar power generation, and wind farms. MVU also purchases from independent power producers and utilities, including out-of-state suppliers.⁷ Table 2 identifies MVU’s specific proportional shares of electricity sources in 2019.

Table 2: MVU 2019 Power Content Label

Energy Resources	2019 Power Mix
Eligible Renewable	33.4%
Biomass & Waste	0.0%
Geothermal	9.3%
Small Hydroelectric	6.8%
Solar	9.5%
Wind	7.8%
Coal	0.0%
Large Hydroelectric	0.0%
Natural Gas	0.0%
Nuclear	0.0%
Other	0.0%
Unspecified Sources of power*	66.6%
Total	100%

Notes:

¹ <http://www.moval.org/mvu/pdfs/power-content2019.pdf>

*Unspecified sources of power means electricity from transactions that are not traceable to specific generation sources.

⁵State Profile and Energy Estimates. Independent Statistics and Analysis. [Online] [Cited November 2020.] <http://www.eia.gov/state/?sid=CA#tabs2>.

⁶ <http://www.moval.org/mvu/about-mvu.html>

⁷ California Energy Commission. Utility Energy Supply plans from 2017. https://www.energy.ca.gov/almanac/electricity_data/supply_forms.html

Natural Gas

Natural gas would be provided to the project by Southern California Gas (SoCalGas). The following summary of natural gas resources and service providers, delivery systems, and associated regulation is excerpted from information provided by the California Public Utilities Commission (CPUC).

The CPUC regulates natural gas utility service for approximately 10.8 million customers that receive natural gas from Pacific Gas and Electric (PG&E), Southern California Gas (SoCalGas), San Diego Gas & Electric (SDG&E), Southwest Gas, and several smaller investor-owned natural gas utilities. The CPUC also regulates independent storage operators Lodi Gas Storage, Wild Goose Storage, Central Valley Storage and Gill Ranch Storage.

The vast majority of California's natural gas customers are residential and small commercial customers, referred to as "core" customers, who accounted for approximately 32 percent of the natural gas delivered by California utilities in 2012. Large consumers, like electric generators and industrial customers, referred to as "noncore" customers, accounted for approximately 68 percent of the natural gas delivered by California utilities in 2012.

The PUC regulates the California utilities' natural gas rates and natural gas services, including in-state transportation over the utilities' transmission and distribution pipeline systems, storage, procurement, metering and billing.

Most of the natural gas used in California comes from out-of-state natural gas basins. In 2012, California customers received 35 percent of their natural gas supply from basins located in the Southwest, 16 percent from Canada, 40 percent from the Rocky Mountains, and 9 percent from basins located within California. California gas utilities may soon also begin receiving biogas into their pipeline systems.”⁸

Transportation Energy Resources

The project would attract additional vehicle trips with resulting consumption of energy resources, predominantly gasoline and diesel fuel. Gasoline (and other vehicle fuels) are commercially-provided commodities and would be available to the project patrons and employees via commercial outlets.

The most recent data available (2016) shows the transportation sector emits 41 percent of the total greenhouse gases in the state and about 84 percent of smog-forming oxides of nitrogen (NOx).^{9,10} Petroleum comprises about 92 percent of all transportation energy use, excluding fuel consumed for aviation and most marine vessels.¹¹

⁸California Public Utilities Commission. Natural Gas and California. http://www.cpuc.ca.gov/natural_gas/

⁹CARB. California Greenhouse Gas Emissions Inventory – 2018 Edition. <https://www.arb.ca.gov/cc/inventory/data/data.htm>

¹⁰CARB. 2016 SIP Emission Projection Data. https://www.arb.ca.gov/app/emsinv/2017/emseic1_query.php?F_DIV=4&F_YR=2012&F_SEASON=A&SP=SIP105ADJ&F_AREA=CA

¹¹US Energy Information Administration. Use of Energy in the United States Explained: Energy Use for Transportation. https://www.eia.gov/energyexplained/?page=us_energy_transportation

2.0 Regulatory Background

Federal and state agencies regulate energy use and consumption through various means and programs. On the federal level, the United States Department of Transportation, the United States Department of Energy, and the United States Environmental Protection Agency are three federal agencies with substantial influence over energy policies and programs. On the state level, the PUC and the California Energy Commissions (CEC) are two agencies with authority over different aspects of energy. Relevant federal and state energy-related laws and plans are summarized below.

Federal Regulations

Corporate Average Fuel Economy (CAFE) Standards

First established by the U.S. Congress in 1975, the Corporate Average Fuel Economy (CAFE) standards reduce energy consumption by increasing the fuel economy of cars and light trucks. The National Highway Traffic Safety Administration (NHTSA) and U.S. Environmental Protection Agency (USEPA) jointly administer the CAFE standards. The U.S. Congress has specified that CAFE standards must be set at the “maximum feasible level” with consideration given for: (1) technological feasibility; (2) economic practicality; (3) effect of other standards on fuel economy; and (4) need for the nation to conserve energy.¹²

Intermodal Surface transportation Efficiency Act of 1991 (ISTEA)

The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) promoted the development of intermodal transportation systems to maximize mobility as well as address national and local interests in air quality and energy. ISTEA contained factors that Metropolitan Planning Organizations (MPOs) were to address in developing transportation plans and programs, including some energy-related factors. To meet the new ISTEA requirements, MPOs adopted explicit policies defining the social, economic, energy, and environmental values guiding transportation decisions.

The Transportation Equity Act of the 21st Century (TEA-21)

The Transportation Equity Act for the 21st Century (TEA-21) was signed into law in 1998 and builds upon the initiatives established in the ISTEA legislation, discussed above. TEA-21 authorizes highway, highway safety, transit, and other efficient surface transportation programs. TEA-21 continues the program structure established for highways and transit under ISTEA, such as flexibility in the use of funds, emphasis on measures to improve the environment, and focus on a strong planning process as the foundation of good transportation decisions. TEA-21 also provides for investment in research and its application to maximize the performance of the transportation system through, for example, deployment of Intelligent Transportation Systems, to help improve operations and management of transportation systems and vehicle safety.

¹² <https://www.nhtsa.gov/lawsregulations/corporate-average-fuel-economy>.

State Regulations

Integrated Energy Policy Report (IEPR)

Senate Bill 1389 requires the California Energy Commission (CEC) to prepare a biennial integrated energy policy report that assesses major energy trends and issues facing the State's electricity, natural gas, and transportation fuel sectors and provides policy recommendations to conserve resources; protect the environment; ensure reliable, secure, and diverse energy supplies; enhance the state's economy; and protect public health and safety. The Energy Commission prepares these assessments and associated policy recommendations every two years, with updates in alternate years, as part of the Integrated Energy Policy Report.

The recently-approved 2017 Integrated Energy Policy Report Updated (2017 IEPR) was published in April 2018, and continues to work towards improving electricity, natural gas, and transportation fuel energy use in California. The 2016 IEPR focuses on a variety of topics such as implementation of Senate Bill 350, integrated resource planning, distributed energy resources, transportation electrification, solutions to increase resiliency in the electricity sector, energy efficiency, transportation electrification, barriers faced by disadvantaged communities, demand response, transmission and landscape-scale planning, the California Energy Demand Preliminary Forecast, the preliminary transportation energy demand forecast, renewable gas (in response to Senate Bill 1383), updates on Southern California electricity reliability, natural gas outlook, and climate adaptation and resiliency.¹³

State of California Energy Plan

The CEC is responsible for preparing the State Energy Plan, which identifies emerging trends related to energy supply, demand, conservation, public health and safety, and the maintenance of a healthy economy. The Plan calls for the state to assist in the transformation of the transportation system to improve air quality, reduce congestion, and increase the efficient use of fuel supplies with the least environmental and energy costs. To further this policy, the plan identifies a number of strategies, including assistance to public agencies and fleet operators and encouragement of urban designs that reduce vehicle miles traveled and accommodate pedestrian and bicycle access.

California Building Standards Code (Title 24)

California Building Energy Efficiency Standards (Title 24, Part 6)

The California Building Energy Efficiency Standards for Residential and Nonresidential Buildings (California Code of Regulations, Title 24, Part 6) were adopted to ensure that building construction and system design and installation achieve energy efficiency and preserve outdoor and indoor environmental quality. The current California Building Energy Efficiency Standards (Title 24 standards) are the 2019 Title 24 standards, which became effective on January 1, 2020. The 2019 Title 24 standards include efficiency improvements

¹³ California Energy Commission. Final 2017 Integrated Energy Policy Report. April 16, 2018. https://www.energy.ca.gov/2017_energypolicy/

to the lighting and efficiency improvements to the non-residential standards include alignment with the American Society of Heating and Air-Conditioning Engineers.

All buildings for which an application for a building permit is submitted on or after January 1, 2020 must follow the 2019 standards. The 2016 residential standards were estimated to be approximately 28 percent more efficient than the 2013 standards, whereas the 2019 residential standards are estimated to be approximately 7 percent more efficient than the 2016 standards. Furthermore, once rooftop solar electricity generation is factored in, 2019 residential standards are estimated to be approximately 53 percent more efficient than the 2016 standards. Under the 2019 standards, nonresidential buildings are estimated to be approximately 30 percent more efficient than the 2016 standards. Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases greenhouse gas emissions.

California Building Energy Efficiency Standards (Title 24, Part 11)

The 2019 California Green Building Standards Code (California Code of Regulations, Title 24, Part 11), commonly referred to as the CALGreen Code, went into effect on January 1, 2020. The 2019 CALGreen Code includes mandatory measures for non-residential development related to site development; energy efficiency; water efficiency and conservation; material conservation and resource efficiency; and environmental quality.

The Department of Housing and Community Development (HCD) updated CALGreen through the 2019 Triennial Code Adoption Cycle. HCD modified the best management practices for stormwater pollution prevention adding Section 5.106.2; added sections 5.106.4.1.3 and 5.106.4.1.5 in regard to bicycle parking; amended section 5.106.5.3.5 allowing future charging spaces to qualify as designated parking for clean air vehicles; updated section 5.303.3.3 in regard to showerhead flow rates; amended section 5.304.1 for outdoor potable water use in landscape areas and repealed sections 5.304.2 and 5.304.3; and updated Section 5.504.5.3 in regard to the use of MERV filters in mechanically ventilated buildings.

Senate Bill 350

Senate Bill 350 (SB 350) was signed into law October 7, 2015, SB 350 increases California's renewable electricity procurement goal from 33 percent by 2020 to 50 percent by 2030. This will increase the use of Renewables Portfolio Standard (RPS) eligible resources, including solar, wind, biomass, geothermal, and others. In addition, SB 350 requires the state to double statewide energy efficiency savings in electricity and natural gas end uses by 2030. To help ensure these goals are met and the greenhouse gas emission reductions are realized, large utilities will be required to develop and submit Integrated Resource Plans (IRPs). These IRPs will detail how each entity will meet their customers resource needs, reduce greenhouse gas emissions and ramp up the deployment of clean energy resources.

Assembly Bill 32

In 2006 the California State Legislature adopted Assembly Bill 32 (AB 32), the California Global Warming Solutions Act of 2006. AB 32 requires CARB, to adopt rules and regulations that would achieve GHG

emissions equivalent to statewide levels in 1990 by 2020 through an enforceable statewide emission cap which will be phased in starting in 2012. Emission reductions shall include carbon sequestration projects that would remove carbon from the atmosphere and best management practices that are technologically feasible and cost effective.

Assembly Bill 1493/Pavley Regulations

California Assembly Bill 1493 enacted on July 22, 2002, required CARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. In 2005, the CARB submitted a “waiver” request to the EPA from a portion of the federal Clean Air Act in order to allow the State to set more stringent tailpipe emission standards for CO₂ and other GHG emissions from passenger vehicles and light duty trucks. On December 19, 2007 the EPA announced that it denied the “waiver” request. On January 21, 2009, CARB submitted a letter to the EPA administrator regarding the State’s request to reconsider the waiver denial. The EPA approved the waiver on June 30, 2009.

Executive Order S-1-07/Low Carbon Fuel Standard

Executive Order S-1-07 was issued in 2007 and proclaims that the transportation sector is the main source of GHG emissions in the State, since it generates more than 40 percent of the State’s GHG emissions. It establishes a goal to reduce the carbon intensity of transportation fuels sold in the State by at least ten percent by 2020. This Order also directs CARB to determine whether this Low Carbon Fuel Standard (LCFS) could be adopted as a discrete early-action measure as part of the effort to meet the mandates in AB 32.

On April 23, 2009 CARB approved the proposed regulation to implement the low carbon fuel standard. The low carbon fuel standard is anticipated to reduce GHG emissions by about 16 MMT per year by 2020. The low carbon fuel standard is designed to provide a framework that uses market mechanisms to spur the steady introduction of lower carbon fuels. The framework establishes performance standards that fuel producers and importers must meet each year beginning in 2011. Separate standards are established for gasoline and diesel fuels and the alternative fuels that can replace each. The standards are “back-loaded”, with more reductions required in the last five years, than during the first five years. This schedule allows for the development of advanced fuels that are lower in carbon than today’s fuels and the market penetration of plug-in hybrid electric vehicles, battery electric vehicles, fuel cell vehicles, and flexible fuel vehicles. It is anticipated that compliance with the low carbon fuel standard will be based on a combination of both lower carbon fuels and more efficient vehicles.

Reformulated gasoline mixed with corn-derived ethanol at ten percent by volume and low sulfur diesel fuel represent the baseline fuels. Lower carbon fuels may be ethanol, biodiesel, renewable diesel, or blends of these fuels with gasoline or diesel as appropriate. Compressed natural gas and liquefied natural gas also may be low carbon fuels. Hydrogen and electricity, when used in fuel cells or electric vehicles are also considered as low carbon fuels for the low carbon fuel standard.

California Air Resources Board

CARB’s Advanced Clean Cars Program

Closely associated with the Pavley regulations, the Advanced Clean Cars emissions control program was approved by CARB in 2012. The program combines the control of smog, soot, and GHGs with requirements

for greater numbers of zero-emission vehicles for model years 2015–2025. The components of the Advanced Clean Cars program include the Low-Emission Vehicle (LEV) regulations that reduce criteria pollutants and GHG emissions from light- and medium-duty vehicles, and the Zero-Emission Vehicle (ZEV) regulation, which requires manufacturers to produce an increasing number of pure ZEVs (meaning battery electric and fuel cell electric vehicles), with provisions to also produce plug-in hybrid electric vehicles (PHEV) in the 2018 through 2025 model years.¹⁴

Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling

The Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling (Title 13, California Code of Regulations, Division 3, Chapter 10, Section 2435) was adopted to reduce public exposure to diesel particulate matter and other air contaminants by limiting the idling of diesel-fueled commercial motor vehicles. This section applies to diesel-fueled commercial motor vehicles with gross vehicular weight ratings of greater than 10,000 pounds that are or must be licensed for operation on highways. Reducing idling of diesel-fueled commercial motor vehicles reduces the amount of petroleum-based fuel used by the vehicle.

Regulation to Reduce Emissions of Diesel Particulate Matter, Oxides of Nitrogen, and other Criteria Pollutants, from In-Use Heavy-Duty Diesel-Fueled Vehicles

The Regulation to Reduce Emissions of Diesel Particulate Matter, Oxides of Nitrogen and other Criteria Pollutants, from In-Use Heavy-Duty Diesel-Fueled Vehicles (Title 13, California Code of Regulations, Division 3, Chapter 1, Section 2025) was adopted to reduce emissions of diesel particulate matter, oxides of nitrogen (NO_x) and other criteria pollutants from in-use diesel-fueled vehicles. This regulation is phased, with full implementation by 2023. The regulation aims to reduce emissions by requiring the installation of diesel soot filters and encouraging the retirement, replacement, or repower of older, dirtier engines with newer emission-controlled models. The newer emission controlled models would use petroleum-based fuel in a more efficient manner.

Sustainable Communities Strategy

The Sustainable Communities and Climate Protection Act of 2008, or Senate Bill 375 (SB 375), coordinates land use planning, regional transportation plans, and funding priorities to help California meet the GHG reduction mandates established in AB 32.

Senate Bill 375 (SB 375) was adopted September 2008 and aligns regional transportation planning efforts, regional GHG emission reduction targets, and land use and housing allocation. SB 375 requires Metropolitan Planning Organizations (MPO) to adopt a sustainable communities strategy (SCS) or alternate planning strategy (APS) that will prescribe land use allocation in that MPOs Regional Transportation Plan (RTP). CARB, in consultation with each MPO, will provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. These reduction targets will be updated every eight years but can be updated every four years if advancements in emissions technologies affect the reduction strategies to achieve the targets. CARB is also charged with reviewing each MPO's sustainable communities strategy or alternate planning strategy for consistency with its assigned targets.

¹⁴ California Air Resources Board, California's Advanced Clean Cars Program, January 18, 2017. www.arb.ca.gov/msprog/acc/acc.htm.

3.0 Evaluation Criteria and Methodology

Evaluation Criteria

CEQA Energy Questions

In compliance with Appendix G of the State CEQA Guidelines, this report analyzes the project's anticipated energy use to determine if the project would:

- a) Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?
- b) Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

In addition, Appendix F of the State CEQA Guidelines states that the means of achieving the goal of energy conservation includes the following:

- Decreasing overall per capita energy consumption;
- Decreasing reliance on fossil fuels such as coal, natural gas and oil; and
- Increasing reliance on renewable energy sources.

Methodology

Information from the CalEEMod 2016.3.2 Daily and Annual Outputs contained in the Farm Market Improvement Development Air Quality and Greenhouse Gas Impact Study (AQR) prepared for the proposed project by MD (October 9, 2020), was utilized for this analysis. The CalEEMod outputs in the AQR detail project related construction equipment, transportation energy demands, and facility energy demands.

4.0 Energy Review

Construction Energy Demand

The construction schedule is anticipated to occur between February 2023 and January 2024 and be completed in one phase. Staging of construction vehicles and equipment will occur on-site.

Construction Equipment Electricity Usage Estimates

As stated previously, electrical service will be provided by the MVU. The focus within this section is the energy implications of the construction process, specifically the power cost from on-site electricity consumption during construction of the proposed project. Based on the 2017 National Construction Estimator, Richard Pray (2017)¹⁵, the typical power cost per 1,000 square feet of building construction per month is estimated to be \$2.32. The project plans to develop the site with approximately 2,000

¹⁵ Pray, Richard. 2017 National Construction Estimator. Carlsbad : Craftsman Book Company, 2017.

square feet (SF) of retail, a 2,500 SF sit-down restaurant, 1,129.4 SF of convenience market with 8 gas pumps, and a 37-space parking lot, on approximately 1.7 acres over the course of approximately eleven months. Based on Table 3, the total power cost of the on-site electricity usage during the construction of the proposed project is estimated to be approximately \$143.65. Furthermore, MVU's general service rate (average of summer and winter rates) is approximately \$0.10 per kWh of electricity.¹⁶ As shown in Table 3, the total electricity usage from Project construction related activities is estimated to be approximately 1,596 kWh.

Table 3: Project Construction Power Cost and Electricity Usage

Power Cost (per 1,000 square foot of building per month of construction)	Total Building Size (1,000 Square Foot)	Construction Duration (months)	Total Project Construction Power Cost
\$2.32	5.6	11	\$143.65

Cost per kWh	Total Project Construction Electricity Usage (kWh)
\$0.10	1,383

*Assumes the project will be under the General Service rate for Moreno Valley Utility (average of summer and winter rates)

Construction Equipment Fuel Estimates

Fuel consumed by construction equipment would be the primary energy resource expended over the course of project construction. Fuel consumed by construction equipment was evaluated with the following assumptions:

- Construction schedule of approximately 11 months
- All construction equipment was assumed to run on diesel fuel
- Typical daily use of 8 hours, with some equipment operating from ~6-7 hours
- Aggregate fuel consumption rate for all equipment was estimated at 18.5 hp-hr/day (from CARB's 2017 Emissions Factors Tables and fuel consumption rate factors as shown in Table D-21 of the Moyer Guidelines: https://www.arb.ca.gov/msprog/moyer/guidelines/2017gl/2017_gl_appendix_d.pdf).
- Diesel fuel would be the responsibility of the equipment operators/contractors and would be sources within the region.
- Project construction represents a "single-event" for diesel fuel demand and would not require on-going or permanent commitment of diesel fuel resources during long term operation.

Using the CalEEMod data input from the air quality and greenhouse gas analysis (MD Acoustics 2019), the project's construction phase would consume electricity and fossil fuels as a single energy demand, that is, once construction is completed their use would cease. CARB's 2013 Emissions Factors Tables

¹⁶ Moreno Valley Utility (MVU). Exhibit A Electric Rates: Schedule B – General Service. http://www.moval.org/mvu/pdfs/MVU_Rates.pdf

show that on average aggregate fuel consumption (gasoline and diesel fuel) would be approximately 18.5 hp-hr-gal. Table 4 shows the results of the analysis of construction equipment.

Table 4: Construction Fuel Construction Estimates

Phase	Number of Days	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor	HP hrs/day	Total Fuel Consumption (gal diesel fuel) ¹
Site Preparation	2	Graders	1	8	187	0.41	613	66
	2	Rubber Tired Dozers	1	7	247	0.4	692	75
	2	Tractors/Loaders/Backhoes	1	8	97	0.37	287	31
Grading	4	Graders	1	6	187	0.41	460	99
	4	Rubber Tired Dozers	1	6	247	0.4	593	128
	4	Tractors/Loaders/Backhoes	1	7	97	0.37	251	54
Building Construction	200	Cranes	1	6	231	0.29	402	4,345
	200	Forklifts	1	6	89	0.2	107	1,155
	200	Generator Sets	1	8	84	0.74	497	5,376
	200	Tractors/Loaders/Backhoes	1	6	97	0.37	215	2,328
	200	Welders	3	8	46	0.45	497	5,371
Paving	10	Pavers	1	6	130	0.42	328	177
	10	Cement and Mortar Mixers	1	6	9	0.56	30	16
	10	Tractors/Loaders/Backhoes	1	8	97	0.37	287	155
	10	Paving Equipment	1	8	132	0.36	380	205
Architectural Coating	10	Air Compressors	1	6	78	0.48	225	121
CONSTRUCTION FUEL DEMAND (gallons of diesel fuel)								19,704

Notes:

¹Using Carl Moyer Guidelines Table D-21 Fuel consumption rate factors (bhp-hr/gal) for engines less than 750 hp.
 (Source: https://www.arb.ca.gov/msprog/moyer/guidelines/2017gl/2017_gl_appendix_d.pdf)

As presented in Table 4, project construction activities would consume an estimated 19,704 gallons of diesel fuel. As stated previously, project construction would represent a “single-event” diesel fuel demand and would not require on-going or permanent commitment of diesel fuel resources for this purpose.

Construction Worker Fuel Estimates

It is assumed that all construction worker trips are from light duty autos (LDA) along area roadways. With respect to estimated VMT, the construction worker trips would generate an estimated 72,295 VMT. Data regarding project related construction worker trips were based on CalEEMod 2016.3.2 model defaults.

Vehicle fuel efficiencies for construction workers were estimated in the air quality and greenhouse gas analysis (MD Acoustics 2020) using information generated using CARB’s EMFAC 2017 model for year 2023. An aggregate fuel efficiency of 30.95 miles per gallon (mpg) was used to calculate vehicle miles traveled for construction worker trips. Table 5 shows that an estimated 2,193 gallons of fuel would be consumed for construction worker trips.

Table 5: Construction Worker Fuel Consumption Estimates

Phase	Number of Days	Worker Trips/Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Site Preparation	2	8	14.7	235	30.95	8
Grading	4	8	14.7	470	30.95	15
Building Construction	200	22	14.7	64,680	30.95	2,090
Paving	10	13	14.7	1,911	30.95	62
Architectural Coating	10	4	14.7	588	30.95	19
Total Construction Worker Fuel Consumption						2,193

Notes:

¹Assumptions for the worker trip length and vehicle miles traveled are consistent with CalEEMod 2016.3.2 defaults.

Construction Vendor/Hauling Fuel Estimates

Tables 6 and 7 show the estimated fuel consumption for vendor and hauling during building construction and architectural coating. With respect to estimated VMT, the vendor and hauling trips would generate an estimated 12,420 VMT. Data regarding project related construction worker trips were based on CalEEMod 2016.3.2 model defaults.

For the architectural coatings it is assumed that the contractors would be responsible for bringing coatings and equipment with them in their light duty vehicles. Therefore, vendors delivering construction material or hauling debris from the site during grading would use medium to heavy duty vehicles with an average fuel consumption of 9.22 mpg and 6.74 mpg respectively. Tables 6 and 7 show that an estimated 1,347 gallons of fuel would be consumed for vendor trips and 24 gallons for hauling trips.

Table 6: Construction Vendor Fuel Consumption Estimates (MHD Trucks)¹

Phase	Number of Days	Vendor Trips/Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Site Preparation	2	0	6.9	0	9.22	0
Grading	4	0	6.9	0	9.22	0
Building Construction	200	9	6.9	12,420	9.22	1,347
Paving	10	0	6.9	0	9.22	0
Architectural Coating	10	0	6.9	0	9.22	0
Total Construction Worker Fuel Consumption						1,347

Notes:

¹Assumptions for the vendor trip length and vehicle miles traveled are consistent with CalEEMod 2016.3.2 defaults.

Table 7: Construction Hauling Fuel Consumption Estimates (HHD Trucks)¹

Phase	Number of Days	Hauling Trips/Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Site Preparation	2	8	20	160	6.74	24
Grading	4	0	20	0	6.74	0
Building Construction	200	0	20	0	6.74	0
Paving	10	0	20	0	6.74	0
Architectural Coating	10	0	20	0	6.74	0
Total Construction Worker Fuel Consumption						24

Notes:

¹Assumptions for the hauling trip length and vehicle miles traveled are consistent with CalEEMod 2016.3.2 defaults.

Construction Energy Efficiency/Conservation Measures

Construction equipment used over the approximately seventeen-month construction phase would conform to CARB regulations and California emissions standards and is evidence of related fuel efficiencies. Construction of the proposed commercial development would require the typical use of energy resources. There are no unusual project characteristics or construction processes that would require the use of equipment that would be more energy intensive than is used for comparable activities; or equipment that would not conform to current emissions standards (and related fuel efficiencies). Equipment employed in construction of the project would therefore not result in inefficient wasteful, or unnecessary consumption of fuel.

CARB has adopted the Airborne Toxic Control Measure to limit heavy-duty diesel motor vehicle idling in order to reduce public exposure to diesel particulate matter and other Toxic Air Contaminants. Additionally, as required by California Code of Regulations Title 13, Motor Vehicles, section 2449(d)(3) Idling, limits idling times of construction vehicles to no more than five minutes, thereby minimizing or eliminating unnecessary and wasteful consumption of fuel due to unproductive idling of construction equipment. Enforcement of idling limitations is realized through periodic site inspections conducted by City building officials, and/or in response to citizen complaints. Compliance with these measures would result in a more efficient use of construction-related energy and would minimize or eliminate wasteful or unnecessary consumption of energy. Idling restrictions and the use of newer engines and equipment would result in less fuel combustion and energy consumption.

Furthermore, the project has been designed in compliance with California's Energy Efficiency Standards and 2019 CALGreen Standards. These measures include, but are not limited to the use of water conserving plumbing, installation of bicycle racks, the use of LED lighting, and water-efficient irrigation systems.

Operation Energy Demand

Energy consumption in support of or related to project operations would include transportation energy demands (energy consumed by employee and patron vehicles accessing the project site) and facilities energy demands (energy consumed by building operations and site maintenance activities).

Transportation Fuel Consumption

The largest source of operational energy use would be vehicle operation of customers. The site is located in a suburban area at the southeast corner of Redland Boulevard and Alessandro Boulevard. Furthermore, there are existing transit services, provided by RTA, approximately 1 mile from the proposed Project site. The nearest transit service is Riverside Transit Route 20, with a stop along Alessandro Boulevard just west of Moreno Beach Drive.

Using the CalEEMod output from the air quality and greenhouse gas analysis (MD Acoustics 2019), an average trip for autos and light trucks was assumed to be 16.6 miles and 3- 4-axle trucks were assumed to travel an average of 8.4 miles¹⁷. To present a worst-case scenario, it was assumed that vehicles would operate 365 days per year rather than the more likely 253 days (excluding weekends and up to 8 holidays). The average, aggregate fuel economy was obtained from EMFAC 2017 for year 2024. Table 8 shows the estimated annual fuel consumption for all classes of vehicles from autos to heavy-heavy trucks.

The proposed project would generate approximately 1,732 trips per day. The vehicle fleet mix was used from the CalEEMod output from the air quality and greenhouse gas analysis (MD Acoustics 2019). Table 8 shows that an estimated 363,786 gallons of fuel would be consumed per year for the operation of the proposed project.

Table 8: Estimated Vehicle Operations Fuel Consumption

Vehicle Type	Vehicle Mix	Number of Vehicles	Average Trip (miles) ¹	Daily VMT	Average Fuel Economy (mpg)	Total Gallons per Day	Total Annual Fuel Consumption (gallons)
Light Auto	Automobile	970	16.6	16,101	32.61	493.73	180,213
Light Truck	Automobile	62	16.6	1,035	27.79	37.25	13,594
Light Truck > 3750 lbs	Automobile	326	16.6	5,405	26.42	204.59	74,675
Medium Truck	Automobile	191	8.4	1,602	21.45	74.68	27,257
Light Heavy Truck	2-Axle Truck	23	8.4	195	14.05	13.88	5,065
Lt Heavy Truck 10,000 lbs +	2-Axle Truck	8	8.4	68	14.44	4.70	1,714
Medium Heavy Truck	3-Axle Truck	30	8.4	255	9.74	26.21	9,568
Heavy Heavy Truck	4-Axle Truck	121	8.4	1,018	7.19	141.64	51,700
Total		1,732	--	25,679	19.21	996.67	--
Total Annual Fuel Consumption							363,786

Notes:

¹Based on the size of the site and relative location, trips were assumed to be local rather than regional.

Facility Energy Demands (Electricity and Natural Gas)

Building operation and site maintenance (including landscape maintenance) would result in the consumption of electricity (provided by MVU) and natural gas (provided by Southern California Gas

¹⁷ CalEEMod default distance for H-W (home-work) or C-W (commercial-work) is 16.6 miles; 8.4 miles for H-O (home-other) or C-O (commercial-other).

Company). Operation of the proposed project would involve the use of energy for heating, cooling and equipment operation. These facilities would comply with all applicable California Energy Efficiency Standards and 2019 CALGreen Standards.

The annual natural gas and electricity demands were provided per the CalEEMod output from the air quality and greenhouse gas analysis (MD Acoustics, LLC 2019) and are provided in Table 9.

Table 9: Project Mitigated Annual Operational Energy Demand Summary¹

Natural Gas Demand	kBTU/year
Convenience Market With Gas Pumps	2,507
High Turnover (Sit-Down Restaurant)	683,600
Regional Shopping Center	4,440
Total	690,547

Electricity Demand	kWh/year
Convenience Market With Gas Pumps	14,264.3
High Turnover (Sit-Down Restaurant)	118,700
Parking Lot	9,605
Regional Shopping Center	25,260.0
Total	167,829

Notes:

¹Taken from the CalEEMod 2016.3.2 annual output in The Farm Market Air Quality and Greenhouse Gas Impact Study prepared for the proposed project by MD Acoustics (October 9, 2019).

Energy use in buildings is divided into energy consumed by the built environment and energy consumed by uses that are independent of the construction of the building such as in plug-in appliances. In California, the California Building Standards Code Title 24 governs energy consumed by the built environment, mechanical systems, and some types of fixed lighting. Non-building energy use, or “plug-in” energy use can be further subdivided by specific end-use (refrigeration, cooking, appliances, etc.).

Renewable Energy and Energy Efficiency Plan Consistency

Regarding federal transportation regulations, the project site is located in an already developed area. Access to/from the project site is from existing roads. These roads are already in place so the project would not interfere with, nor otherwise obstruct intermodal transportation plans or projects that may be proposed pursuant to the ISTEA because SCAG is not planning for intermodal facilities in the project area.

Regarding the State’s Energy Plan and compliance with Title 24 CCR energy efficiency standards, the applicant is required to comply with the California Green Building Standard Code requirements for energy efficient buildings and appliances as well as utility energy efficiency programs implemented by the MVU and Southern California Gas Company.

Regarding the State’s Renewable Energy Portfolio Standards, the project would be required to meet or exceed the energy standards established in the California Green Building Standards Code, Title 24, Part

11 (CALGreen). CalGreen Standards require that new buildings reduce water consumption, employ building commissioning to increase building system efficiencies, divert construction waste from landfills, and install low pollutant-emitting finish materials.

5.0 Conclusions

As supported by the preceding analyses, neither construction nor operation of the Project would result in wasteful, inefficient, or unnecessary consumption of energy, or wasteful use of energy resources. Therefore, impacts related to wasteful energy use would be less than significant. Furthermore, the energy demands of the project can be accommodated within the context of available resources and energy delivery systems. The project would therefore not cause or result in the need for additional energy producing or transmission facilities. The project would not engage in wasteful or inefficient uses of energy and aims to achieve energy conservation goals within the State of California.

The Project has been designed in compliance with California's Energy Efficiency Standards and 2019 CALGreen Standards. These measures include, but are not limited to the use of water conserving plumbing, the use of LED lighting, and water-efficient irrigation systems. The Project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency; therefore, impacts would be less than significant.

MD is pleased to provide this CEQA Energy review. If you have any questions regarding this analysis, please don't hesitate to call us at (805) 426-4477.

Sincerely,
MD Acoustics, LLC



Mike Dickerson, INCE
Principal

Appendix E - Geotechnical Analysis

**PRELIMINARY GEOTECHNICAL INVESTIGATION
PROPOSED COMMERCIAL DEVELOPMENT
14058 REDLANDS BOULEVARD
MORENO VALLEY, CALIFORNIA**

**PROJECT NO. 12765.11
NOVEMBER 21, 2018**

Prepared For:

Mr. Parmjit Singh
14058 Redlands Boulevard
Moreno Valley, California 92555

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

November 21, 2018

Mr. Parmjit Singh
14058 Redlands Boulevard
Moreno Valley, California 92555

Project No. 12765.11

Subject: Preliminary Geotechnical Investigation, Proposed Commercial Development,
14058 Redlands Boulevard, Moreno Valley, California.

LOR Geotechnical Group, Inc., is pleased to present this report summarizing our geotechnical investigation for the subject project. In summary, it is our opinion that the proposed development is feasible from a geotechnical perspective, provided the recommendations presented in the attached report are incorporated into design and construction.

The project site is underlain by an approximate 2-foot thick layer of undocumented fill materials overlying alluvial materials which were found to have a potential for hydro-collapse in the upper 10 to 12 feet. It is our opinion that the existing fill materials and upper hydro-collapsible alluvial soils will not provide uniform and/or adequate support for the proposed development. Thus, we recommend a compacted fill mat be constructed beneath footings and slabs. The construction of this compacted fill mat will allow for the removal of the existing, uncontrolled fills and upper unsuitable alluvium. All on-site soils should be suitable for use as engineered compacted fill. Removals on the order of 10 to 12 feet are anticipated to be required within the proposed building pad areas, while removals on the order of 2 to 4 feet are expected to be necessary within parking, driveway, and flatwork areas.

Due to the presence of hydro-collapsible soils at the site and adjacent properties, infiltration of water into the upper approximately 10 to 12 feet is not recommended. While the remedial grading recommended within this report is anticipated to mitigate such soils within the proposed building areas of the site, the presence of hydro-collapsible soils on neighboring properties is most likely and the introduction of water into such soils could have an adverse effect on those developments.

Low expansive soils and moderate R-value quality soils were encountered on the site. A negligible sulfate content was found for the soils tested. Near completion and/or at the completion of site grading, additional foundation and subgrade soils should be tested to verify their expansion potential, soluble sulfate content, and R-value quality.

LOR Geotechnical Group, Inc.

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

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Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

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INTRODUCTION

During October and November of 2018, a Preliminary Geotechnical Investigation was performed by LOR Geotechnical Group, Inc., for the proposed commercial development of 14085 Redlands Boulevard, in the City of Moreno Valley, California. The purpose of this investigation was to provide a technical evaluation of the geologic setting of the site and to provide geotechnical design recommendations for the proposed development. The scope of our services included:

- Review of available geotechnical literature, reports, maps, and agency information pertinent to the study area;
- Geologic field reconnaissance mapping to verify the areal distribution of earth units and significance of surficial features as compiled from documents, literature, and reports reviewed;
- A subsurface field investigation to determine the physical soil conditions pertinent to the proposed development;
- Laboratory testing of selected soil samples obtained during the field investigation;
- Infiltration testing via the double ring test method within the approximate area proposed for the infiltration of onsite runoff waters;
- Development of geotechnical recommendations for site grading and foundation design; and
- Preparation of this report summarizing our findings, and providing conclusions and recommendations for site development.

The approximate location of the site is shown on the attached Index Map, Enclosure A-1 within Appendix A.

PROJECT CONSIDERATIONS

To orient our investigation at the site, a Site Plan was provided for our use. This plan illustrated the current site development as well as the proposed development. As illustrated, that the site will be developed with a 6,000 square foot restaurant and commercial building, a fueling station, and associated parking, driveway, and landscape improvements. A water quality basin is proposed. Minimal cuts and fills on the order of 2

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to 3 feet are anticipated based on the current site topography and that of the adjoining areas. A copy of the Site Plan is shown on Enclosure A-2, within the Appendix A.

The construction of the building is anticipated to be wood frame and stucco or similar type construction. Light to moderate foundation loads are anticipated with the proposed structure.

EXISTING SITE CONDITIONS

The site consists of approximately 2 acres of land located at the southeast corner of Alessandro Boulevard and Redlands Boulevard. At the time of our investigation, the site was partially developed with a commercial structure and the associated parking, driveway, and landscape improvements. A cellular tower and associated equipment was also present. This development comprised the western half of the site. The eastern half of the site was vacant. The proposed structure and water quality basin are to be in the southern portion of the eastern half of the site with the northern portion of the eastern half to be paved parking. The proposed fueling station is to be located within the currently developed parking lot in the northwest portion of the site.

The topography of the site is essentially a flat plain with a very slight slope to the south-southeast.

At the time of our investigation, the site was bounded on the east by a single family residences. The site was bounded on the south by Kimberly Avenue, a paved roadway, with single family residential properties beyond. The site was bounded on the north by Alessandro Boulevard, a paved roadway, with a small market/gas station and single family residences beyond. West of the site was Redlands Boulevard, a paved roadway, with a Post Office and single-family residences beyond.

PREVIOUS GEOTECHNICAL INVESTIGATIONS

This firm provided geotechnical services during the design and construction of the existing development on the site. Our initial investigation consisted of a preliminary geotechnical and infiltration feasibility investigation in 2011. This investigation was conducted to provide preliminary geotechnical recommendations for such items as: geologic hazards, site rough grading, foundation design, pavement design, and other associated geotechnical aspects with regards to site development. In brief summary, the upper approximately 10 to 12 feet of native soils were found to have a slight to moderate potential for hydro-collapse and

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were not considered suitable for support of structures and/or structural fill. In addition, the soils tested were found to have a low expansion potential, moderate R-value quality and negligible soluble sulfate content.

This firm provided geotechnical observation and compaction testing during the grading of the existing site improvements in 2012. Based on the recommendations of the preliminary geotechnical report, within the building pad area and extending approximately 12 feet beyond the footings, the upper approximately 12 feet of soil was removed and replaced as engineered compacted fill.

SUBSURFACE FIELD INVESTIGATION

Our subsurface field exploration program was conducted on October 26, 2018. The work consisted of advancing a total of three exploratory borings using a truck mounted drill rig equipped with 8-inch diameter hollow stem augers. The approximate locations of our exploratory borings are presented on Enclosure A-2, within Appendix A.

The subsurface conditions encountered in the exploratory borings were logged by a geologist from this firm. The borings were drilled to depths of 26.5 to 51.5 feet below the existing ground surface. Relatively undisturbed and bulk samples were obtained at a maximum depth interval of 5 feet and returned to our geotechnical laboratory in sealed containers for further testing and evaluation.

A detailed description of the subsurface field exploration program and the boring logs are presented in Appendix B.

LABORATORY TESTING PROGRAM

Selected soil samples obtained during the field investigation were subjected to geotechnical laboratory testing to evaluate their physical and engineering properties. Laboratory testing included moisture content, dry density, laboratory compaction, consolidation, direct shear, sieve analysis, sand equivalent, R-Value, expansion index, Atterberg limits, and soluble sulfate content. A detailed description of the geotechnical laboratory testing program and the test results are presented in Appendix C.

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GEOLOGIC CONDITIONS

Regional Geologic Setting

The site is situated within the northeastern portion of the Peninsular Ranges Geomorphic Province of southern California. This province incorporates several northwest trending mountain ranges, such as the Santa Ana and San Jacinto Mountains, which extend from the Transverse Ranges Geomorphic Province, northeast of Los Angeles, into the Baja California Peninsula. Lying in between these small ranges are a series of valleys and basins, such as the Perris Plain. The Perris Plain is composed of rocks of the Peninsular Ranges batholith, a very large mass composed primarily of batholithic crystalline igneous rocks, with lesser amounts of metasedimentary and metavolcanic rocks which predate the intrusion of the batholith. The batholithic rocks actually consist of numerous separate plutonic intrusions which range in composition from gabbro to granite, with tonalite the predominate lithology. While the floor of the Perris Plain is relatively flat, it is dotted with small remnant hills composed of rocks highly resistant to erosion. Erosion of the hills has resulted in the covering of a thin to thick veneer of various ages of alluvial fan materials across the flank of the hills and out into the adjoining valley floor. The current drainage pattern of the northeastern section of Moreno Valley flows to the south, then turns to the southwest where southward flow is blocked by Mount Russell. This pattern has eroded off some of the older alluvial fan materials and subsequently deposited various amounts of relatively younger, unconsolidated alluvial sediments along the lower reaches of the valley.

The interior of the Perris Plain is considered to be relatively stable with few known active faults. However, this plain is bounded by active faults. These include the Elsinore fault zone on the west, the San Jacinto fault zone on the northeast, the San Andreas fault zone on the north, and the Agua-Tibia fault zone on the south. As the subject site is located near the northeastern margin of the Perris Plain, the San Jacinto fault is the closest known active fault in relation to the site. At its closest approach, the San Jacinto fault is located approximately 3 kilometers (1.9 miles) northeast from the site. A complete listing of the distances to known active faults in relation to the various planning areas is given in the Faulting section of this report.

The site is shown within the regional geologic setting as mapped by the U.S.G.S. on the enclosed Regional Geologic Map, Enclosure A-3, within Appendix A.

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Site Geologic Conditions

As observed during this investigation, the subject site contains a very thin veneer of undocumented fill/topsoil or engineered fill overlying native alluvial materials. These units are described in further detail in the following sections:

Surficial Deposits

Fill/Topsoil: The surface of the currently undeveloped portion of the site contained a very thin layer of fill/topsoil materials. These materials were noted to generally consist of sandy silt which was gray-brown in color, dry, and in a relatively loose state. This unit was noted to be approximately 2 feet in thickness as is most likely a result of past and current weed abatement practices at the site.

Engineered Fill:

Underlying areas of the site that are currently developed, engineered compacted fill previously mentioned above was encountered at the surface to a depth of approximately 5 feet (LOR, 2012). These materials consisted of sandy silt and silty sand which was gray-brown, dry at the surface becoming damp to moist with depth.

Alluvium: Underlying the surficial fill materials, natural units of alluvium were encountered. These materials generally consisted of lean clay with sand near the surface followed by sandy silt within the upper approximately 25 feet. Lean clay with sand was encountered at depths of approximately 25 feet and greater. In general, the upper approximately 25 feet of alluvial materials were brown to white-tan in color, damp to dry, and contained varying amounts of calcite stringers and pinhole porosity. Based on our in-place density testing and equivalent SPT blow counts, the upper 10 to 12 feet of the alluvium is in a medium to very stiff state while the materials below are in a very stiff to very hard state. Consolidation testing also showed that the upper alluvial units have a moderately severe potential for collapse. Collapsible soils are primarily defined as unsaturated, granular materials in a loose state that is maintained by apparent cohesion due to clays or accumulated soluble salts at their intergranular contacts. These soils are relatively strong at their natural water contents but experience a significant decrease in volume (settlement) due to softening of the binder upon the introduction of water. A potential for hydro-collapse of approximately 10 percent was determined for the upper 10 feet of the native alluvial materials. Below 10 feet, the hydro-collapse potential of the on-site soils decreases to less than one-half percent and is, therefore, considered negligible. Expansion index testing performed on the

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fine grained units of alluvium showed that these soils have a low expansion potential. Details and the results of our consolidation and expansion index testing is presented within Appendix C of this report.

A detailed description of the subsurface soil conditions as encountered within our exploratory borings is presented on the Boring Logs within Appendix B.

Groundwater Hydrology

Groundwater was not encountered in any of our excavations at the site. In order to estimate the approximate depth to groundwater in this area, a search was conducted for local municipal water wells on the Western Municipal Water District Cooperative Well Measuring Program, Spring 2018. This database contains depth to groundwater measurements dating back to 1993. The closest well found was listed as the well "Sunnymead Poultry Theodore South" operated by Eastern Municipal Valley Water District, located approximately 0.8 kilometers (0.5 miles) to the northeast. In this well, given by the State Well numbering system as 03S/03W-12K001S, groundwater was last measured at a depth of 127 feet below the ground surface in November of 2007. The depth to groundwater in the past was noted to vary slightly over time. However, data was only available for the years from 2004 to 2007. The next closest well found was listed as the well "MVRGC" operated by Eastern Municipal Valley Water District, located approximately 1.2 kilometers (0.75 miles) to the southwest. In this well, given by the State Well numbering system as 03S/03W-14L011E, groundwater was last measured at a depth of 69 feet below the ground surface in October of 2016. The depth to groundwater in the past was noted to vary slightly over time. However, data was only available for the years from 2004 to 2016.

According to the Santa Ana Watershed Authority Database Management System, groundwater lied at an elevation of approximately 1,500 feet above mean sea level (msl) from 1987 to 2006. The approximate elevation of the subject site is 1,600 feet above msl.

We conducted a search of the water well database provided in the State of California Department of Water Resources website. This search indicated the nearest well in this database was State Well Number 03S02W07P001S, located approximately 2 kilometers (1.2 miles) to the northeast. Data for this well was available from 1939 to 1985. Groundwater measurements over that time ranged from approximately 100 feet to 145 feet below the ground surface.

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Based on the information above, groundwater at the site appears to be at depths on the order of one hundred feet.

Mass Movement

The majority of the site lies on a relatively flat surface. The occurrence of mass movement failures such as landslides, rockfalls, or debris flows within such areas are generally not considered common and no evidence of mass movement was observed on the site.

Faulting

No active or potentially active faults are known to exist at the subject site. In addition, the subject site does not lie within a current State of California Earthquake Fault Zone (Hart and Bryant, 2003).

As previously mentioned, the closest known active earthquake fault with a documented location is the San Jacinto fault located approximately 3 kilometers (1.9 miles) to the northeast. In addition, other relatively close active faults include the San Andreas fault located approximately 22 kilometers (13.5 miles) to the northeast, the Elsinore fault located approximately 34.5 kilometers (21.4 miles) to the southwest, and the Cucamonga fault located approximately 39 kilometers (24 miles) to the north.

The San Jacinto fault zone is a sub-parallel branch of the San Andreas fault zone, extending from the northwestern San Bernardino area, southward into the El Centro region. This fault has been active in recent times with several large magnitude events. It is believed that the San Jacinto fault is capable of producing an earthquake magnitude on the order of 6.5 or larger.

The San Andreas fault is considered to be the major tectonic feature of California, separating the Pacific Plate and the North American Plate. While estimates vary, the San Andreas fault is generally thought to have an average slip rate on the order of 24mm/yr and capable of generating large magnitude events on the order of 7.5.

The Elsinore fault zone is one of the largest in southern California. At its northern end it splays into two segments and at its southern end it is cut by the Yuba Wells fault. The primary sense of slip along the Elsinore fault is right lateral strike-slip. It is believed that the Elsinore fault zone is capable of producing an earthquake magnitude on the order of 6.5 to 7.5.

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The Cucamonga fault is considered to be part of the Sierra Madre fault system which marks the southern boundary of the San Gabriel Mountains. This is a north dipping thrust fault which is believed to be responsible for the uplift of the San Gabriel Mountains. It is believed that the Cucamonga fault is capable of producing an earthquake magnitude on the order of 7.0.

Current standards of practice included a discussion of all potential earthquake sources within a 100 kilometer (62 mile) radius. However, while there are other large earthquake faults within a 100 kilometer (62-mile) radius of the site, none of these are considered as relevant to the site as the faults described above, due to their closer distance and larger anticipated magnitudes.

Historical Seismicity

In order to obtain a general perspective of the historical seismicity of the site and surrounding region, a search was conducted for seismic events at and around the area within various radii. This search was conducted utilizing the historical seismic search program by EPI Software, Inc. (Reeder, 2000). This program conducts a search of a user selected cataloged seismic events database, within a specified radius and selected magnitudes, and then plots the events onto an overlay map of known faults. For this investigation the database of seismic events utilized by the EPI program was obtained from the Southern California Seismic Network (SCSN) available from the Southern California Earthquake Center. At the time of our search the data base contained data from January 1, 1932 through December 31, 2010.

In our first search, the general seismicity of the region was analyzed by selecting an epicenter map listing all events of magnitude 4.0 and greater, recorded since 1932, within a 100 kilometer (62 mile) radius of the site, in accordance with guidelines of the California Division of Mines and Geology. This map illustrates the regional seismic history of moderate to large events. As depicted on Enclosure A-4, within Appendix A, the site lies within a relatively active region associated with the San Jacinto and the San Andreas faults trending southeast to northwest. Of these events, the closest was a magnitude 4.1 located approximately 10 kilometers (6.2 miles) north of the site.

In the second search, the micro seismicity of the area lying within a 10 kilometer (9.2 miles) radius of the site was examined by selecting an epicenter map listing events on the order of 0.0 and greater since 1978. In addition, only the "A" events, or most accurate events were selected. Caltech indicates the accuracy of the "A" events to be approximately 1

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kilometer. The results of this search is a map that presents the seismic history around the area of the site with much greater detail, not permitted on the larger map. The reason for limiting the events to the last 30 ± years on the detail map is to enhance the accuracy of the map. Events recorded prior the mid 1970's are generally considered to be less accurate due to advancements in technology. As depicted on this map, Enclosure A-5, the San Jacinto fault appears to be the source of numerous events, roughly coinciding with the surface trace of this fault.

In summary, the historical seismicity of the site entails numerous small to medium magnitude earthquake events occurring in the region around the subject site, predominately associated with the presence of the San Jacinto, and San Andreas faults. Any future developments at the subject site should anticipate that moderate to large seismic events could occur very near the site.

Secondary Seismic Hazards

Other secondary seismic hazards generally associated with severe ground shaking during an earthquake include liquefaction, seismic-induced settlement, seiches and tsunamis, earthquake induced flooding, landsliding, and rockfalls.

Liquefaction: The potential for liquefaction generally occurs during strong ground shaking within loose, granular sediments where the groundwater is usually less than 50 feet. As the depth to groundwater is on the order of one hundred feet the potential for liquefaction is considered nil.

Seiches/Tsunamis: The potential for the site to be affected by a seiche or tsunami (earthquake generated wave) is considered nil due to the absence of any large bodies of water near the site.

Flooding (Water Storage Facility Failure): There are no large water storage facilities located on or near the site which could possibly rupture during an earthquake and affect the site by flooding.

Seismically-Induced Landsliding: Due to the low relief of the site and surrounding region, the potential for landslides to occur at the site is considered nil.

Rockfalls. No large, exposed, loose or unrooted boulders are present above the site that would affect the integrity of the site.

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SOILS AND SEISMIC DESIGN CRITERIA (California Building Code 2016)

Section 1613 of Chapter 16 of the 2016 California Building Code (CBC) contains the procedures and definitions for the calculations of the earthquake loads on structures and non structural components that are permanently attached to structures and their supports and attachments.

It should be noted that the classification of use and occupancy of all proposed structures at the site, and thus design requirements, shall be the responsibility of the structural engineer and the building official.

CBC Earthquake Design Summary

The following earthquake design criteria have been formulated for the site utilizing the source referenced above.

However, these values should be reviewed by the building official (Risk Category) and structural engineer and the final design should be performed by a qualified structural engineer familiar with the region.

CBC 2016 SEISMIC DESIGN SUMMARY (ASCE 7-10)* Site Location (USGS WGS84) 33.9169, -117.1561, Risk Category II	
Site Class Definition Chapter 20 ASCE 7	D
S_s Mapped Spectral Response Acceleration at 0.2s Period, (Figure 1613.3.1(1))	2.114
S₁ Mapped Spectral Response Acceleration at 1s Period, (Figure 1613.3.3(2))	0.955
F_a Short Period Site Coefficient at 0.2s Period, (Table 1613.3.3(1))	1.0
F_v Long Period Site Coefficient at 1s Period, (Table 1613.3.3(2))	1.5
S_{MS} Adjusted Spectral Response Acceleration at 0.2s Period, (eq .16-37)	2.114
S_{M1} Adjusted Spectral Response Acceleration at 1s Period, (eq .16-38)	1.432
S_{DS} Design Spectral Response Acceleration at 0.2s Period, (eq .16-39)	1.409
S_{D1} Design Spectral Response Acceleration at 1s Period, (eq .16-40)	0.955
Seismic Design Category - Short Period (Table 1613.3.5(1))	E
Seismic Design Category - Long Period (Table 1613.3.5(2))	E
*Values obtained from U.S.G.S. online U.S. Seismic Design Maps tool	

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INFILTRATION TESTING AND TEST RESULTS

Two double ring infiltration tests were conducted at the locations requested and illustrated on Enclosure A-2. As requested, test pits were excavated to depths of approximately 4 feet below the existing ground surface and a 12-inch diameter casing was installed within the center of the test locations with a 24-inch diameter casing centered around it. Each casing was imbedded to a depth of approximately 3.5-inches. These liners extended approximately 16.5-inches above the bottom of the test location. The test locations were tested immediately after the casings were installed by filling both the inside and outside casings and maintaining a water level to a depth of approximately 3.5 and 4-inches.

The testing procedure was as follows:

Both the inside and outside areas of the casings were filled with water to a level of approximately 3.5 and 4-inches above the ground surface. Water was then metered to maintain this water level within both rings. The volume of water use in a given time period was recorded at various time intervals to establish the infiltration rate of the water within the inner ring. See the attached Infiltration Test Data sheets, Enclosures D-1 and D-2 within Appendix D for the test information and measurements.

The infiltration rate is measured as the drop in water level compared to the permeability of the bottom surface area soils in the bottom of the test hole. If casing is not used, the water column in the test hole is allowed to seep into both the bottom and sidewalls of the hole, for which the drop in water level must be corrected and reduced for the volume of water seeping into the sidewall and for the diameter of the test hole. As described above, the tests described herein were conducted using a 12-inch diameter inner casing and 24-inch diameter outer casing.

The test holes were found to have the following measured clear water infiltration rates:

Infiltration Test No.	Infiltration Rate*	
	gal/sf/day	in/hr
DRI-1	22.7	1.7
DRI-2	22.5	1.7
* Rounded final reading		

Our test data indicates decent infiltration rates of the soils tested.

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CONCLUSIONS

On the basis of our field investigation and testing program, it is the opinion of LOR Geotechnical Group, Inc., that the proposed development is feasible from a soil engineering standpoint, provided the recommendations presented in this report are incorporated into design and implemented during grading and construction.

Based upon the field investigation and test data, it is our opinion that the surficial layer of existing fill/topsoil materials that covers the site, as well as the upper portions of the alluvial soil will not, in their present conditions, provide uniform and/or adequate support for the proposed structures. However, the removal and recompaction of existing on-site soils will be an acceptable solution. Our in-place density results indicated variable conditions of the existing fills and upper portions of the alluvial materials ranging from loose to medium dense states. In addition, a potential for hydro-collapse of approximately 10 percent was exhibited by the upper alluvial units, as shown in the laboratory test results presented within Appendix C. Left as is, this condition could cause unacceptable differential and/or overall settlements upon application of the anticipated foundation loads.

To provide adequate support for the proposed structure, we recommend a compacted fill mat be constructed beneath footings and slabs. This compacted fill mat will provide a dense, high-strength soil layer to uniformly distribute the anticipated foundation loads over the underlying soils. In addition, the construction of this compacted fill mat will allow for the removal of the existing fills and the loose, moderately collapsible alluvial soil within the building pad area. Conventional foundation systems, using either individual spread footings and/or continuous wall footings, will provide adequate support for the anticipated downward and lateral loads when utilized in conjunction with the recommended fill mat.

Soil Expansiveness

As noted by our subsurface explorations and laboratory testing, the site surficial soils primarily consist of lean clay with sand and silty sand with trace of clay that possess a low expansion potential. Therefore, recommendations for low expansive soils are given in the Foundation Design, Building Area Slab-on-Grade, and Exterior Flatwork sections of this report.

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Geologic Mitigations

No special mitigation methods are deemed necessary at this time, other than the geotechnical recommendations provided in the following sections.

Seismicity

Seismic ground rupture is generally considered most likely to occur along pre-existing active faults. Since no faults are known to exist at, or project into the site, the probability of ground surface rupture occurring at the site is considered nil.

Due to the site's close proximity to the San Jacinto and San Andreas faults described above, it is reasonable to expect a very strong ground motion seismic event to occur during the lifetime of the proposed development on the site. Large earthquakes could occur on other faults in the general area, but because of their lesser anticipated magnitude and/or greater distance, they are considered less significant than the San Jacinto and San Andreas fault zones from a ground motion standpoint.

The effects of ground shaking anticipated at the subject site, should be mitigated by the seismic design requirements and procedures outlined in Chapter 16 of the California Building Code. However, it should be noted that the current building code requires the minimum design to allow a structure to remain standing after a seismic event, in order to allow for safe evacuation. A structure built to code may still sustain damage which might ultimately result in the demolishing of the structure (Larson and Slosson, 1992).

RECOMMENDATIONS

General Site Grading

It is imperative that no clearing and/or grading operations be performed without the presence of a qualified geotechnical engineer. An on-site, pre-job meeting with the developer, the contractor, the jurisdictional agency, and the geotechnical engineer should occur prior to all grading related operations. Operations undertaken at the site without the geotechnical engineer present may result in exclusion of affected areas from the final compaction report for the project.

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Grading of the subject site should be performed in accordance with the following recommendations as well as applicable portions of the California Building Code, and/or applicable local ordinances.

All areas to be graded should be stripped of significant vegetation and other deleterious materials. Such materials may not be used as engineered fill.

All uncontrolled fills encountered during site preparation should be completely removed, cleaned of significant deleterious materials, and may then be reused as compacted fill. Uncontrolled fills were identified at the site during this study to a depth on the order of 2 feet.

It is our recommendation that all existing uncontrolled and/or undocumented fills under any proposed flatwork and paved areas should be removed and replaced with engineered compacted fill. If this is not done, premature structural distress (settlement) of the flatwork and pavement may occur.

Cavities created by removal of subsurface obstructions should be thoroughly cleaned of loose soil, organic matter and other deleterious materials, shaped to provide access for construction equipment, and backfilled as recommended in the following Engineered Compacted Fill section of this report.

Initial Site Preparation

All existing uncontrolled fills and loose, hydro-collapsible alluvial materials should be removed from structural areas and areas to receive structural fills. The data developed during this investigation indicates that removals on the order of 10 to 12 feet will be required to encounter competent alluvium. Areas adjacent to the existing structure to within approximately 12 feet, are anticipated to encounter engineered compacted fill previously placed during rough grading for the structure. Removals for the new structure should expose these materials prior to reaching the existing building. Competent alluvium is defined as damp, medium dense to dense materials with a minimum relative compaction of 83 percent (ASTM D 1557).

Remedial removals on the order of 2 to 4 feet in depth are anticipated to be required within planned parking, driveway, and flatwork areas in order to eliminate the existing uncontrolled fills.

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The actual depths of removal should be verified during the grading operation by observation and in-place density testing.

Preparation of Fill Areas

After conducting the removals discussed above and prior to placing fill, the surfaces of all areas to receive fill should be scarified to a depth of at least 12 inches. The scarified soil should be brought to near optimum moisture content and recompacted to a relative compaction of at least 90 percent (ASTM D 1557).

Preparation of Building Pad Areas

All footings should rest upon a minimum of 24 inches of properly compacted fill material placed over competent alluvium. In areas where the required fill thickness is not accomplished by the removal of the existing fill and loose alluvial materials and site rough grading, the footing areas should be further subexcavated to a depth of at least 24 inches below the proposed footing base grade, with the subexcavation extending at least 5 feet beyond the footing lines. Where deeper removals in excess of 5 feet are required, these removals should extend laterally at a 1:1 ratio. The bottom of this excavation should then be scarified to a depth of at least 12 inches, brought to near optimum moisture content, and recompacted to at least 90 percent relative compaction (ASTM D 1557) prior to refilling the excavation to grade as properly compacted fill.

Along the northern, eastern, and southern portion of the restaurant/commercial building, removals will need to extend eastward beyond the footing line in order to provide the above recommended 1:1 ratio. As previously mentioned, areas adjacent to the existing structure to within approximately 12 feet, are anticipated to encounter engineered compacted fill previously placed during rough grading for the structure. Removals for the new structure should expose these materials prior to reaching the existing building.

To provide adequate support, concrete slabs-on-grade should bear on a minimum of 12 inches of compacted soil. During rough grading, the remedial removals recommended above will most likely provide the recommended 12 inches of compacted soil for adequate support of concrete slabs-on-grade.

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Engineered Compacted Fill

The on-site soils should provide adequate quality fill material, provided they are free from organic matter and other deleterious materials. Unless approved by the geotechnical engineer, rock or similar irreducible material with a maximum dimension greater than 6-inches should not be buried or placed in fills.

Import fill should be inorganic, non-expansive granular soils free from rocks or lumps greater than 6-inches in maximum dimension. Sources for import fill should be approved by the geotechnical engineer prior to their use.

Fill should be spread in maximum 8-inch loose lifts, each lift brought to near optimum moisture content, and compacted to a relative compaction of at least 90 percent in accordance with ASTM D 1557.

As noted before, the on-site soils have potential for expansion. Therefore, a careful evaluation of on-site and any imported soils for their expansion potential should be conducted during the grading operation.

Short-Term Excavations

Following the California Occupational and Safety Health Act (CAL-OSHA) requirements, excavations 5-feet deep and greater should be sloped or shored. All excavations and shoring should conform to CAL-OSHA requirements.

Short-term excavations of 5-feet deep and greater shall conform to Title 8 of the California Code of Regulations, Construction Safety Orders, Section 1504 and 1539 through 1547. Based on our exploratory borings it appears that Type C soil is the predominant type of soil on the project and all short-term excavations should be based on this type of soil. Deviation from the standard short-term slopes are permitted using Option 4, Design by a Registered Professional Engineer (Section 1541.1).

Short-term slope construction and maintenance are the responsibility of the contractor, and should be a consideration of his methods of operation and the actual soil conditions encountered.

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Soil Expansiveness

The upper materials encountered during this investigation were observed to be granular and considered to have a low expansion potential. Therefore, specialized construction procedures to specifically resist expansive soil activity are not anticipated at this time. In order to verify this, additional evaluation of on-site and any imported soils for their expansion potential should be conducted following completion of the grading operation.

Foundation Design

If the site is prepared as recommended, the proposed residential buildings may be safely founded on conventional spread foundations, either individual spread footings and/or continuous wall footings, bearing on a minimum of 24 inches of engineered compacted fill. All foundations should have a minimum width of 12 inches and should be established a minimum of 12 inches below lowest adjacent grade.

For the minimum width and depth, footings may be designed using a maximum soil bearing pressure of 1,500 pounds per square foot (psf) for dead plus live loads. This value may be increased by 300 psf for each additional foot of width and by 300 psf for each additional foot of depth, to a maximum of 3,000 psf.

The above values are net pressures; therefore, the weight of the foundations and the backfill over the foundations may be neglected when computing dead loads. The values apply to the maximum edge pressure for foundations subjected to eccentric loads or overturning. The recommended pressures apply for the total of dead plus frequently applied live loads, and incorporate a factor of safety of at least 3.0. The allowable bearing pressures may be increased by one-third for temporary wind or seismic loading. The resultant of the combined vertical and lateral seismic loads should act within the middle one-third of the footing width. The maximum calculated edge pressure under the toe of foundations subjected to eccentric loads or overturning should not exceed the increased allowable pressure.

Resistance to lateral loads will be provided by passive earth pressure and base friction. For footings bearing against compacted fill, passive earth pressure may be considered to be developed at a rate of 300 pounds per square foot per foot of depth. Base friction may be computed at 0.30 times the normal load. Base friction and passive earth pressure may be combined without reduction.

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Footings on low expansive soils should be reinforced with a minimum of two #4 rebars, one near the top and one near the bottom of the footings.

The preceding recommendations to counteract low expansive soil activity should be considered preliminary and should be revised upon the completion of the site grading. More stringent parameters for design of foundations on expansive soils can be specified by a structural engineer experienced in these matters.

Settlement

Total settlement of individual foundations will vary depending on the width of the foundation and the actual load supported. Maximum settlement of shallow foundations designed and constructed in accordance with the preceding recommendations are estimated to be on the order of 0.5 inch. Differential settlement between adjacent footings should be about one-half of the total settlement. Settlement of all foundations is expected to occur rapidly, primarily as a result of elastic compression of supporting soils as the loads are applied, and should be essentially completed shortly after initial application of the loads.

Building Pad Slab-On-Grade Design

Concrete floor slabs should bear on a minimum of 24 inches of engineered fill compacted to at least 90 percent (ASTM D 1557) placed over competent alluvium. This will most likely be accomplished during the recommended removals previously mentioned. The final pad surfaces should be rolled to provide smooth, dense surfaces upon which to place the concrete.

Because low expansive soils are present at the site, slab areas should be properly pre-soaked prior to pouring concrete. Slab areas should be pre-soaked to approximately 2 percent above the optimum moisture content to a minimum depth of 12 inches. Unless more stringent parameters are given by the structural engineer experienced on expansive soil design, the slab thickness should be a minimum of 4 inches. Minimum slab reinforcement should consist of #3 rebars placed at a maximum spacing of 18 inches on center, each way.

Slabs to receive moisture-sensitive coverings should be provided with a moisture vapor barrier. This barrier may consist of an impermeable membrane. Two inches of sand over the membrane will reduce punctures and aid in obtaining a satisfactory concrete cure. The sand should be moistened just prior to placing of concrete.

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The slabs should be protected from rapid and excessive moisture loss which could result in slab curling. Careful attention should be given to slab curing procedures, as the site area is subject to large temperature extremes, humidity, and strong winds.

The preceding recommendations to counteract low expansive soil activity should be considered preliminary and are subject to the review and approval of the project structural engineer. These recommendations should be also revised upon the completion of the site grading.

Exterior Flatwork

To provide adequate support, exterior flatwork improvements should rest on a minimum of 12 inches of soil compacted to at least 90 percent (ASTM D 1557).

Because low expansive soils are present at the site, flatwork areas should be pre-soaked prior to pouring concrete to a minimum depth of 12 inches and to approximately 2 percent above the optimum moisture content. All sidewalks, patio slabs, and driveways with a minimum dimension greater than 5 feet, should be reinforced with #3 rebars placed at a maximum spacing of 18 inches on center, each way. Reinforcement for curbing should be one continuous #4 rebar at top and bottom. In addition, it is recommended that sidewalks, patio slabs, curbs, etc., have a thickness of at least 4 inches, with saw cuts every 10 feet or less. Driveways should be at least 8 inches (per city standard 112) thick, with saw cuts every 15 feet or less.

Flatwork surface should be sloped a minimum of 1 percent away from buildings and slopes, to approved drainage structures.

Again, the recommendations given to counteract low expansive soil activity should be considered preliminary and should be revised upon the completion of the site grading.

Wall Pressures

The design of footings for walls below grade (basement or pit walls, etc.) and retaining structures should be performed in accordance with the recommendations described earlier under Preparation of Building Pad Areas and Foundation Design. For design of retaining wall footings, the resultant of the applied loads should act in the middle one-third of the

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footing, and the maximum edge pressure should not exceed the basic allowable value without increase.

For design of retaining walls unrestrained against movement at the top, we recommend an equivalent fluid density of 35 pounds per cubic foot (pcf) be used. This assumes level backfill consisting of recompacted, non-expansive, native soils placed against the structures and with the backcut slope extending upward from the base of the stem at 35 degrees from the vertical or flatter.

As noted before, expansive soils are present at the site. Since these materials have a very low permeability very uncertain behavior, and exert much higher lateral earth pressures on retaining structures, they should not be used as wall backfills.

To avoid overstressing or excessive tilting during placement of backfill behind walls, heavy compaction equipment should not be allowed within the zone delineated by a 45 degree line extending from the base of the wall to the fill surface. The backfill directly behind the walls should be compacted using light equipment such as hand operated vibrating plates and rollers. No material larger than 3-inches in diameter should be placed in direct contact with the wall.

Wall pressures should be verified prior to construction, when the actual backfill materials and conditions have been determined. Recommended pressures are applicable only to level, non-expansive, properly drained backfill (with no additional surcharge loadings). If inclined backfills are proposed, this firm should be contacted to develop appropriate active earth pressure parameters. Toe bearing pressure for non-structural walls on soils, not prepared as described earlier under Preparation of Foundation Areas, should not exceed California Building Code values, (CBC Table 18-1.A).

Preliminary Pavement Design

Testing and design for preliminary on-site pavement was conducted in accordance with the Caltrans Highway Design Manual. Based upon our preliminary sampling and testing, and upon assumed Traffic Indices, it appears that the structural sections tabulated below should provide satisfactory pavements for the subject development:

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AREA	T.I.	DESIGN R-VALUE	PRELIMINARY SECTION
On-site parking and drive aisles	5.0	20	0.25' AC/0.60' AB
Local Street - Kimberly Avenue	6.0	20	0.30' AC*/0.85' CAB
AC - Asphalt Concrete AB - Class 2 Aggregate Base or equivalent CAB - Crushed Aggregate Base * Minimum thickness per the City of Moreno Valley Standard Plans No. 100A approved 09/18			

The above structural sections are predicated upon 90 percent relative compaction (ASTM D 1557) of all utility trench backfills and 95 percent relative compaction (ASTM D 1557) of the upper 12 inches of street subgrade soils and of any aggregate base utilized. In addition, the on-site aggregate base should meet Caltrans specifications for Class 2 Aggregate Base and the aggregate base within the City right-of-way should meet Greenbook specifications for Crushed Aggregate Base.

In areas of the pavement which will receive high abrasion loads due to start-ups and stops, or where trucks will move on a tight turning radius, consideration should be given to installing concrete pads. Such pads should contain a minimum of 0.50 foot thick concrete with a 0.35 foot thick aggregate base. Concrete pads are also recommended in areas adjacent to trash storage areas where heavier loads will occur due to operation of trucks lifting trash dumpsters. The minimum compressive strength of concrete paving should be 3,250 psi.

It should be noted that all of the above pavement design was based upon the results of preliminary sampling and testing, and should be verified by additional sampling and testing during construction when the actual subgrade soils are exposed.

Sulfate Protection

The results of the sulfate tests conducted on selected subgrade soils expected to be encountered at foundation levels are presented in Appendix C.

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Based on the test results it appears that there is a negligible sulfate exposure to concrete elements in contact with on site soils. The 2016 CBC, therefore, does not recommend special design criteria for concrete elements in contact with such materials.

Infiltration Basin

Due to the presence of hydro-collapsible soils at the site and adjacent properties, infiltration of water into the upper approximately 10 to 12 feet is not recommended. While the remedial grading recommended within this report is anticipated to mitigate such soils within the proposed building areas of the site, the presence of hydro-collapsible soils on neighboring properties is most likely and the introduction of water into such soils could have an adverse effect on those developments.

Construction Monitoring

Post investigative services are an important and necessary continuation of this investigation. Project plans and specifications should be reviewed by the project geotechnical consultant prior to construction to confirm that the intent of the recommendations presented in this report have been incorporated into the design. Additional R-Value, expansion index, and soluble sulfate testing may be required after/during site rough grading.

During construction, sufficient and timely geotechnical observation and testing should be provided to correlate the findings of this investigation with the actual subsurface conditions exposed during construction. Items requiring observation and testing include, but are not necessarily limited to, the following:

1. Site preparation-stripping and removals.
2. Excavations, including approval of the bottom of excavation prior to backfilling.
3. Scarifying and recompacting prior to fill placement.
4. Subgrade preparation for pavements and slabs-on-grade.

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5. Placement of engineered compacted fill and backfill, including approval of fill materials and the performance of sufficient density tests to evaluate the degree of compaction being achieved.

LIMITATIONS

This report contains geotechnical conclusions and recommendations developed solely for use by Mr. Parmjit Singh, and their design consultants, for the purposes described earlier. It may not contain sufficient information for other uses or the purposes of other parties. The contents should not be extrapolated to other areas or used for other facilities without consulting LOR Geotechnical Group, Inc.

The recommendations are based on interpretations of the subsurface conditions concluded from information gained from subsurface explorations and a surficial site reconnaissance. The interpretations may differ from actual subsurface conditions, which can vary horizontally and vertically across the site. If conditions are encountered during the construction of the project, which differ significantly from those presented in this report, this firm should be notified immediately so we may assess the impact to the recommendations provided. Due to possible subsurface variations, all aspects of field construction addressed in this report should be observed and tested by the project geotechnical consultant.

If parties other than LOR Geotechnical Group, Inc. provide construction monitoring services, they must be notified that they will be required to assume responsibility for the geotechnical phase of the project being completed by concurring with the recommendations provided in this report or by providing alternative recommendations.

The report was prepared using generally accepted geotechnical engineering practices under the direction of a state licensed geotechnical engineer. No warranty, expressed or implied, is made as to conclusions and professional advice included in this report. Any persons using this report for bidding or construction purposes should perform such independent investigations as deemed necessary to satisfy themselves as to the surface and subsurface conditions to be encountered and the procedures to be used in the performance of work on this project.

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November 21, 2018

Project No. 12765.11

TIME LIMITATIONS

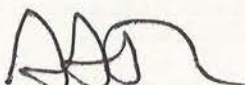
The findings of this report are valid as of this date. Changes in the condition of a property can, however, occur with the passage of time, whether they be due to natural processes or the work of man on this or adjacent properties. In addition, changes in the Standards-of-Practice and/or Governmental Codes may occur. Due to such changes, the findings of this report may be invalidated wholly or in part by changes beyond our control. Therefore, this report should not be relied upon after a significant amount of time without a review by LOR Geotechnical Group, Inc. verifying the suitability of the conclusions and recommendations.


CLOSURE

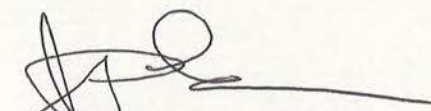
It has been a pleasure to assist you with this project. We look forward to being of further assistance to you as construction begins. Should conditions be encountered during construction that appear to be different than indicated by this report, please contact this office immediately in order that we might evaluate their effect.

Should you have any questions regarding this report, please do not hesitate to contact our office at your convenience.

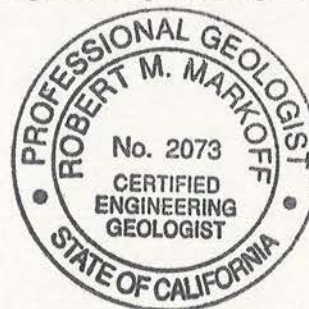
Respectfully submitted,
LOR Geotechnical Group, Inc.


Andrew A. Tardie
Staff Geologist


Robert M. Markoff, CEG 2073
Engineering Geologist


John P. Leuer, GE 2030
President

AAT:RMM:JPL/ss



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Harry Heady via email hheady@headydesign.com

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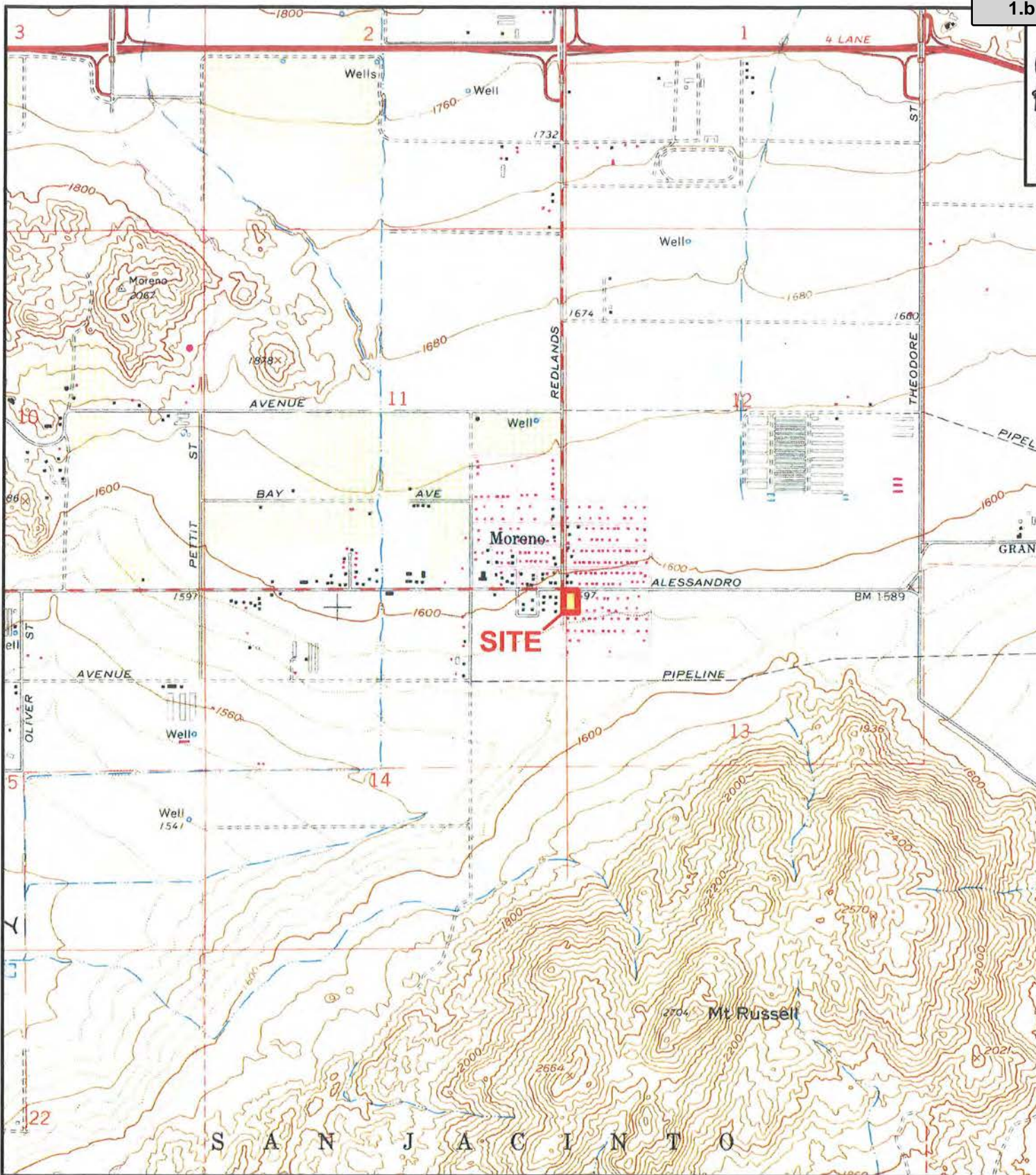
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APPENDIX A

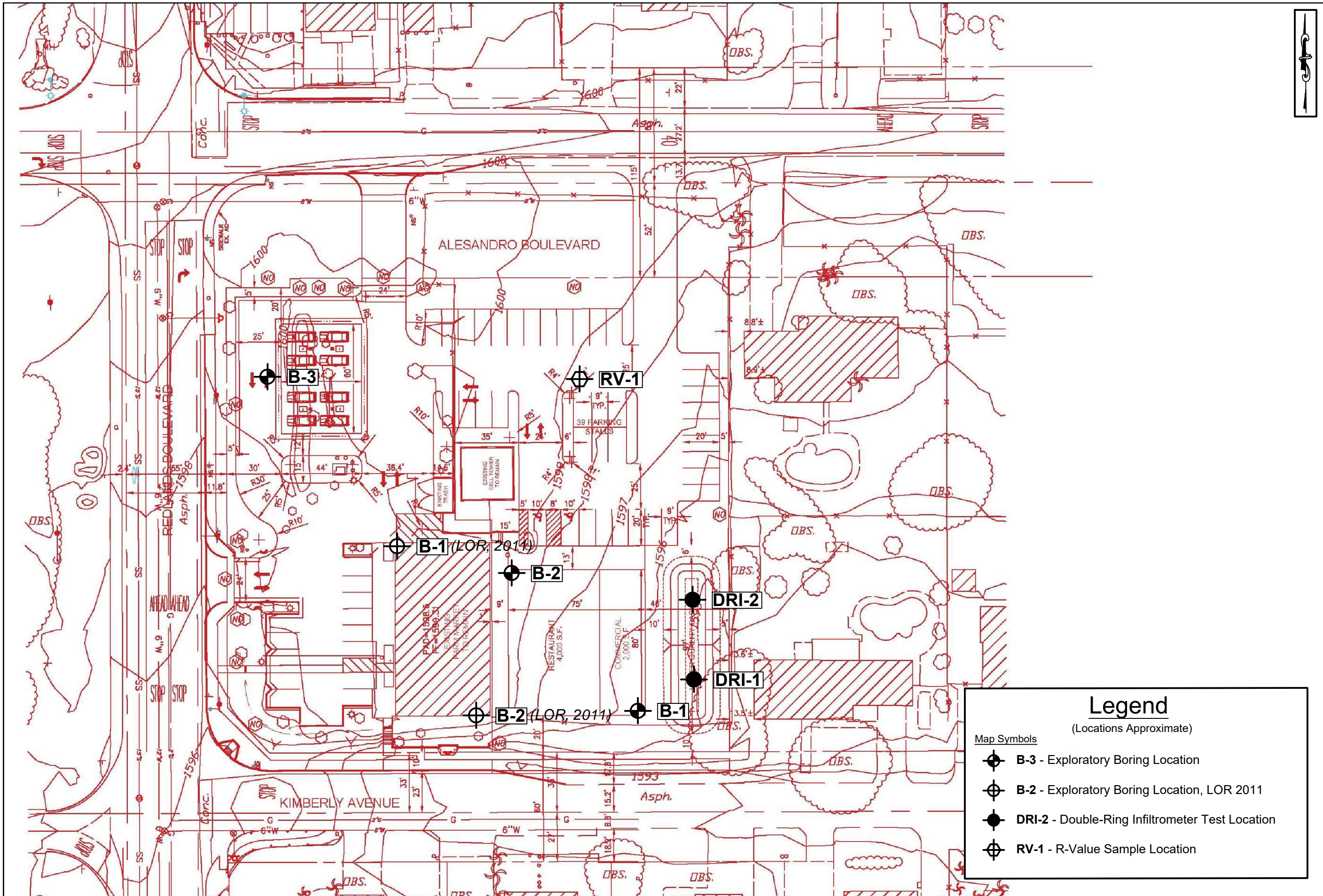
Index Map, Site Plan, Regional Geologic Map, and Historical Seismicity Maps



INDEX MAP





Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

PROJECT:	PROPOSED GAS STATION AND RESTAURANT, MORENO VALLEY, CALIFORNIA	PROJECT NO:	12765
CLIENT:	MR. PARMJIT SINGH	ENCLOSURE:	/
LOR Geotechnical Group, Inc.		DATE:	OCTOBER 20
		SCALE:	1" = 2000'



Legend
(Locations Approximate)

Map Symbols

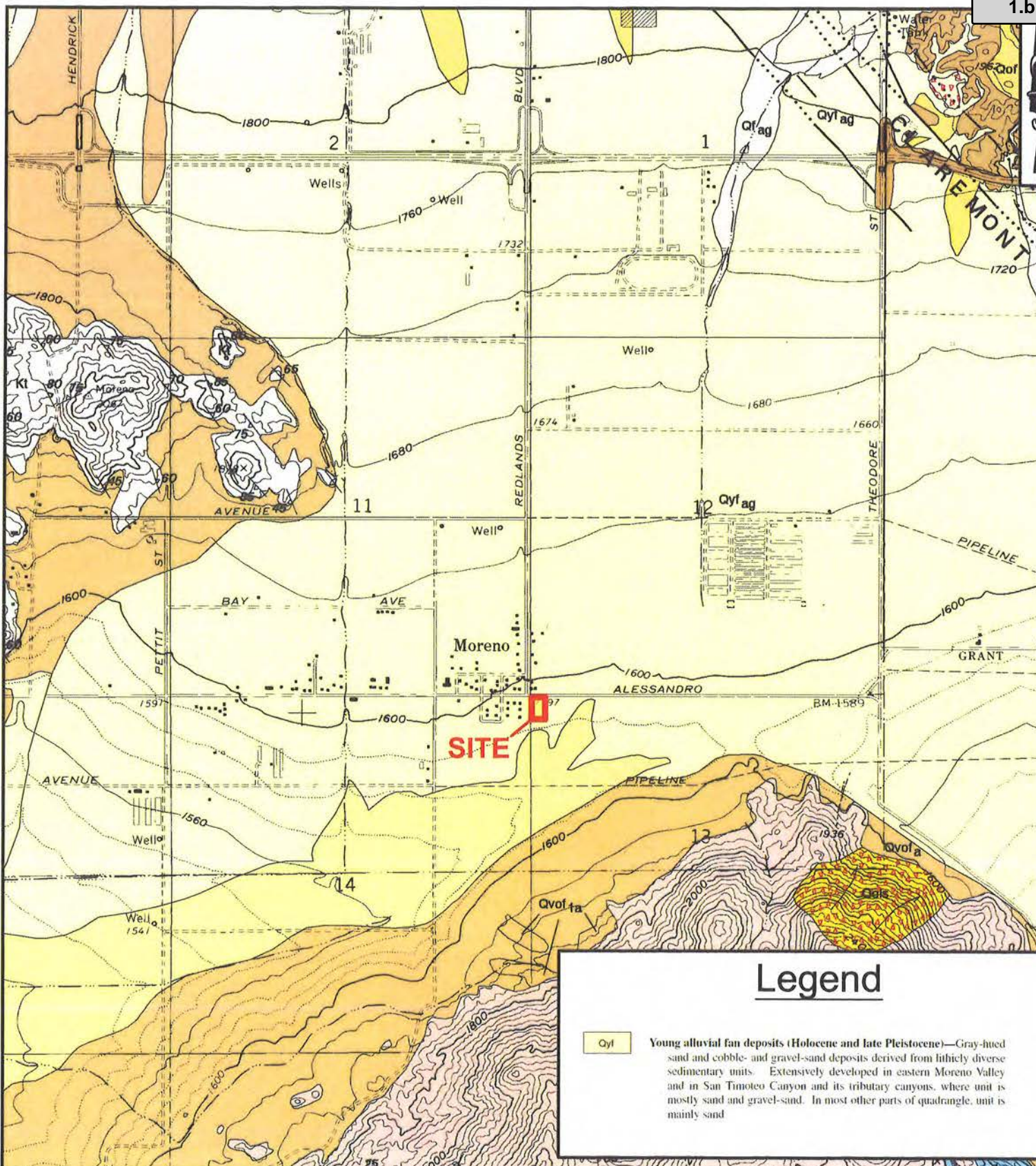
-  B-3 - Exploratory Boring Location
-  B-2 - Exploratory Boring Location, LOR 2011
-  DRI-2 - Double-Ring Infiltrometer Test Location
-  RV-1 - R-Value Sample Location

SITE PLAN

PROJECT:	PROPOSED GAS STATION AND RESTAURANT, MORENO VALLEY, CALIFORNIA	PROJECT NO.:	12765.11
CLIENT:	MR. PARMJIT SINGH	ENCLOSURE:	A-2
		DATE:	OCTOBER 2018
		SCALE:	1" = 50'

LOR Geotechnical Group, Inc.

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)



Legend

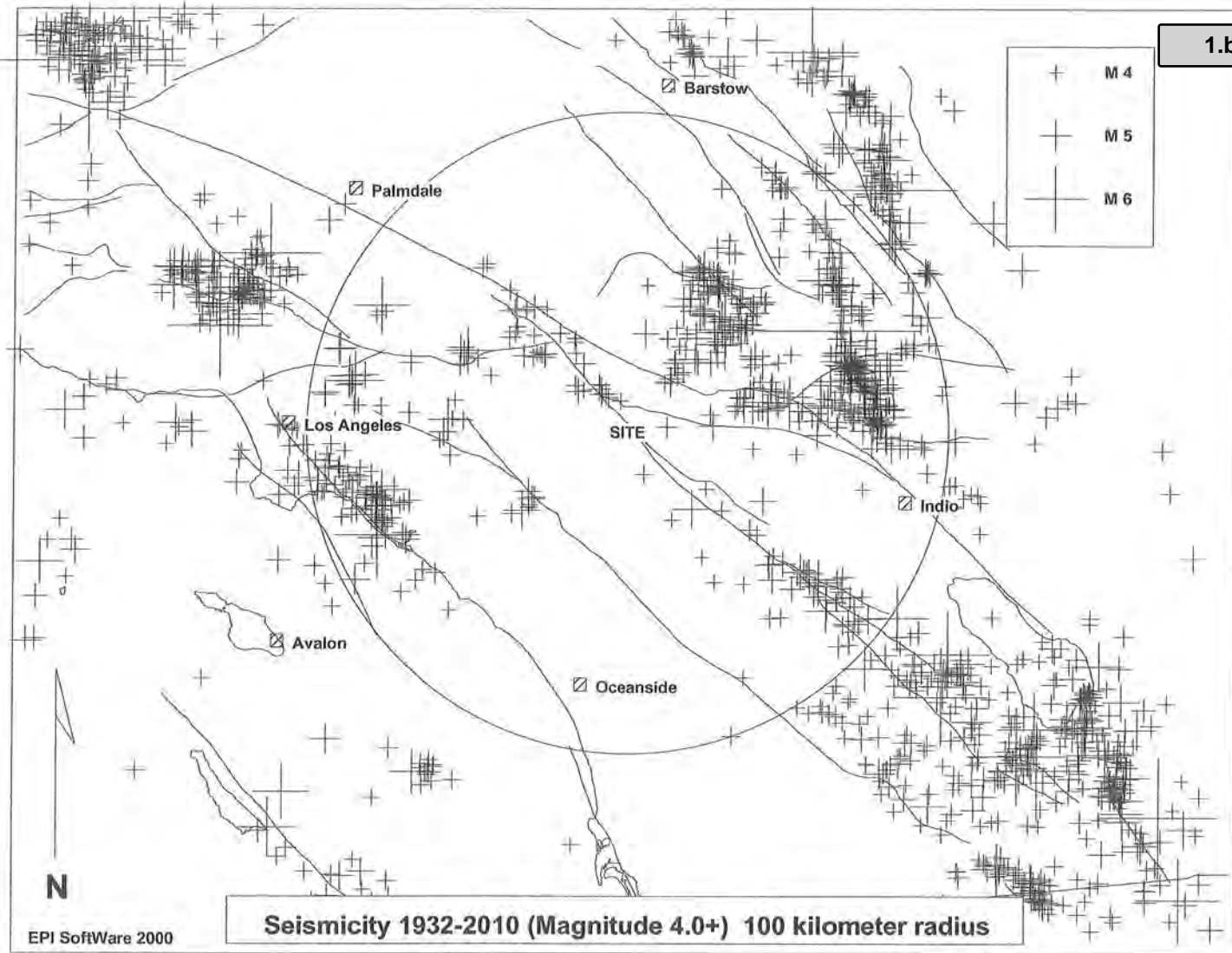
Qyf Young alluvial fan deposits (Holocene and late Pleistocene)—Gray-hued sand and cobble- and gravel-sand deposits derived from lithically diverse sedimentary units. Extensively developed in eastern Moreno Valley and in San Timoteo Canyon and its tributary canyons, where unit is mostly sand and gravel-sand. In most other parts of quadrangle, unit is mainly sand

REGIONAL GEOLOGIC MAP

(Morton & Matti, 199

PROJECT:	PROPOSED GAS STATION AND RESTAURANT, MORENO VALLEY, CALIFORNIA	PROJECT NO:	12765.
CLIENT:	MR. PARMJIT SINGH	ENCLOSURE:	A
LOR Geotechnical Group, Inc.		DATE:	OCTOBER 201
		SCALE:	1" = 2000'

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)



SITE LOCATION: 33.9169 LAT. -117.1561 LONG.

MINIMUM LOCATION QUALITY: C

TOTAL # OF EVENTS ON PLOT: 1506

TOTAL # OF EVENTS WITHIN SEARCH RADIUS: 603

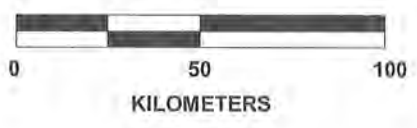
MAGNITUDE DISTRIBUTION OF SEARCH RADIUS EVENTS:

- 4.0- 4.9 : 543
- 5.0- 5.9 : 55
- 6.0- 6.9 : 4
- 7.0- 7.9 : 1
- 8.0- 8.9 : 0

CLOSEST EVENT: 4.1 ON SATURDAY, FEBRUARY 13, 2010 LOCATED APPROX. 10 KILOMETERS NORTH OF THE SITE

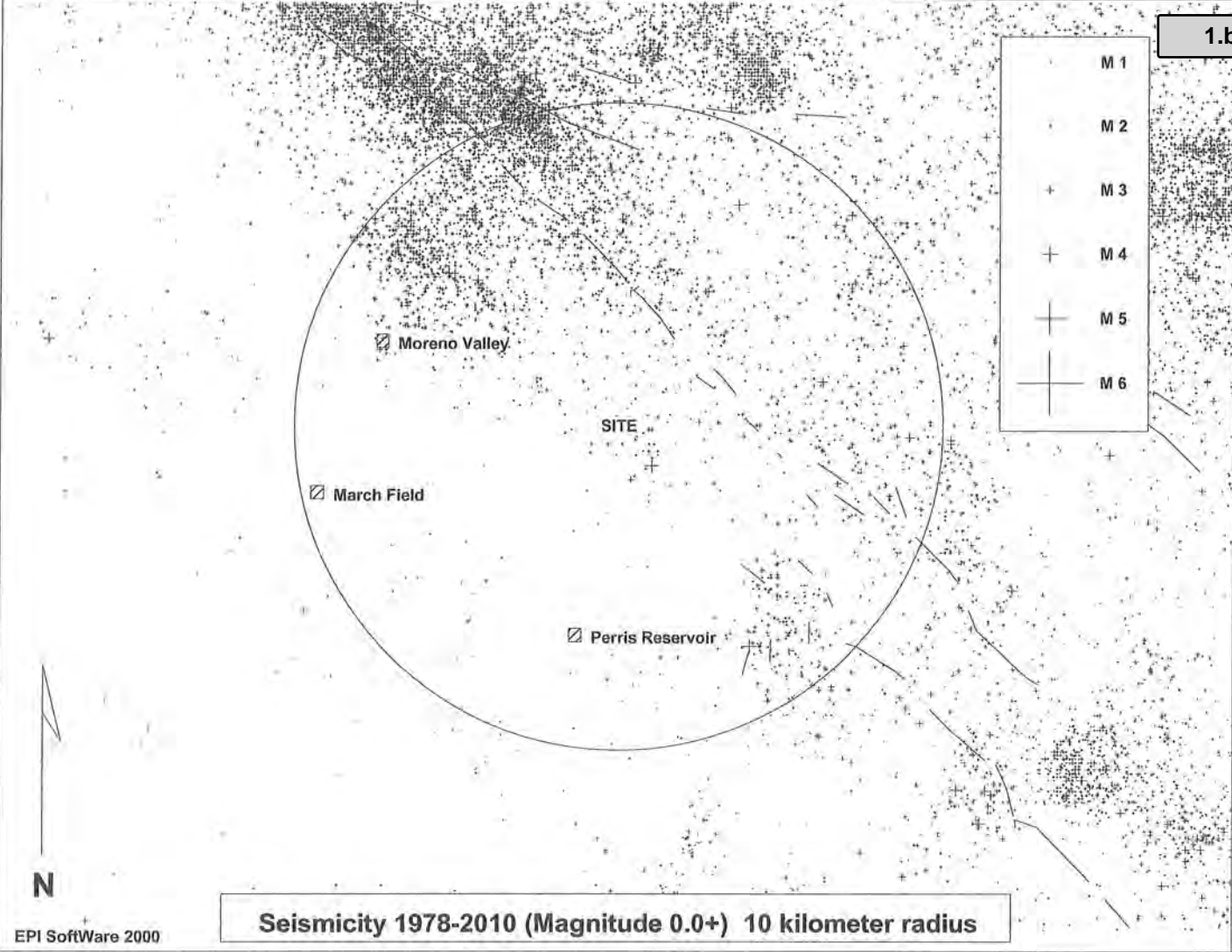
LARGEST 5 EVENTS:

- 7.3 ON SUNDAY, JUNE 28, 1992 LOCATED APPROX. 73 KILOMETERS NORTHEAST OF THE SITE
- 6.4 ON SATURDAY, MARCH 11, 1933 LOCATED APPROX. 84 KILOMETERS SOUTHWEST OF THE SITE
- 6.3 ON SUNDAY, JUNE 28, 1992 LOCATED APPROX. 43 KILOMETERS NORTHEAST OF THE SITE
- 6.1 ON THURSDAY, APRIL 23, 1992 LOCATED APPROX. 77 KILOMETERS EAST OF THE SITE
- 6.0 ON SATURDAY, DECEMBER 04, 1948 LOCATED APPROX. 76 KILOMETERS EAST OF THE SITE



ENCLOSURE A-4

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)



Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

SITE LOCATION: 33.9169 LAT. -117.1561 LONG.

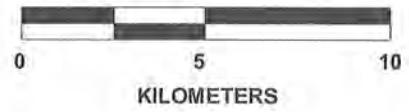
MINIMUM LOCATION QUALITY: A

TOTAL # OF EVENTS ON PLOT: 11223

TOTAL # OF EVENTS WITHIN SEARCH RADIUS: 2981

MAGNITUDE DISTRIBUTION OF SEARCH RADIUS EVENTS:

- 0.0- .9 : 420
- 1.0- 1.9 : 2184
- 2.0- 2.9 : 363
- 3.0- 3.9 : 13
- 4.0- 4.9 : 1
- 5.0- 5.9 : 0
- 6.0- 6.9 : 0
- 7.0- 7.9 : 0
- 8.0- 8.9 : 0



CLOSEST EVENT: 1.0 ON FRIDAY, NOVEMBER 21, 2008 LOCATED APPROX. .3 KILOMETER OF THE SITE

LARGEST 5 EVENTS:

- 4.1 ON SATURDAY, FEBRUARY 13, 2010 LOCATED APPROX. 9 KILOMETERS NORTH OF THE SITE
- 3.8 ON MONDAY, JULY 10, 2006 LOCATED APPROX. 7 KILOMETERS SOUTHEAST OF THE SITE
- 3.8 ON THURSDAY, SEPTEMBER 12, 1996 LOCATED APPROX. 1 KILOMETERS SOUTHEAST OF THE SITE
- 3.6 ON SATURDAY, JUNE 04, 1988 LOCATED APPROX. 7 KILOMETERS NORTHEAST OF THE SITE
- 3.5 ON TUESDAY, OCTOBER 13, 1987 LOCATED APPROX. 7 KILOMETERS NORTHWEST OF THE SITE

ENCLOSURE A-5

APPENDIX B

Field Investigation Program and Boring Logs

APPENDIX B FIELD INVESTIGATION

Subsurface Exploration

Our subsurface exploration of the site consisted of drilling a total of three exploratory borings to depths ranging from approximately 26.5 to 51.5 feet below the existing ground surface using a Mobile B-61 drill rig on October 26, 2018. The approximate locations of the borings are shown on Enclosure A-2.

The drilling exploration was conducted using a Mobile B-61 drill rig equipped with 8-inch diameter hollow stem augers. The soils encountered within the borings were continuously logged by a geologist from this firm who inspected the site, created detailed logs of the borings, obtained undisturbed, as well as disturbed, soil samples for evaluation and testing, and classified the soils by visual examination in accordance with the Unified Soil Classification System.

Relatively undisturbed samples of the subsoils were typically obtained at a maximum interval of 5 feet. The samples were recovered by using a California split barrel sampler of 2.40-inch inside diameter and 3.25-inch outside diameter from the ground surface to the maximum depths attained. The samplers were driven by a 140-pound automatic trip hammer dropped from a height of 30 inches. The number of hammer blows required to drive the sampler into the ground the final 12 inches were recorded and further converted to an equivalent SPT N-values, which are included in the boring logs, Enclosures B-1 through B-3.

The undisturbed soil samples were retained in brass sample rings of 2.42 inches in diameter and 1.00 inch in height, and placed in sealed plastic containers. Disturbed soil samples were obtained at selected levels within the borings and placed in sealed containers for transport to our geotechnical laboratory.

All samples obtained were taken to our geotechnical laboratory for storage and testing. Detailed logs of the borings are presented on the enclosed Boring Logs, Enclosures B-1 through B-3. A Boring Log Legend is presented on Enclosure B-i. A Soil Classification Chart is presented as Enclosure B-ii.

CONSISTENCY OF SOIL

SAMPLE KEY

SANDS

<u>SPT BLOWS</u>	<u>CONSISTENCY</u>
0-4	Very Loose
4-10	Loose
10-30	Medium Dense
30-50	Dense
Over 50	Very Dense

Symbol

Description



- INDICATES CALIFORNIA SPLIT SPOON SOIL SAMPLE
- INDICATES BULK SAMPLE
- INDICATES SAND CONE OR NUCLEAR DENSITY TEST
- INDICATES STANDARD PENETRATION TEST (SPT) SOIL SAMPLE

COHESIVE SOILS

<u>SPT BLOWS</u>	<u>CONSISTENCY</u>
0-2	Very Soft
2-4	Soft
4-8	Medium
8-15	Stiff
15-30	Very Stiff
30-60	Hard
Over 60	Very Hard

TYPES OF LABORATORY TESTS

- 1 Atterberg Limits
- 2 Consolidation
- 3 Direct Shear (undisturbed or remolded)
- 4 Expansion Index
- 5 Hydrometer
- 6 Organic Content
- 7 Proctor (4", 6", or Cal216)
- 8 R-value
- 9 Sand Equivalent
- 10 Sieve Analysis
- 11 Soluble Sulfate Content
- 12 Swell
- 13 Wash 200 Sieve

BORING LOG LEGEND

PROJECT:	PROPOSED GAS STATION CANOPY & RESTAURANT	PROJECT NO.: 12765.11
CLIENT:	PARMJIT SINGH	ENCLOSURE: B-i
LOR Geotechnical Group, Inc.		DATE: OCTOBER 2018

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS
			GRAPH	LETTER	
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS <i>(LITTLE OR NO FINES)</i>		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES <i>(APPRECIABLE AMOUNT OF FINES)</i>		GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		SAND AND SANDY SOILS	CLEAN SANDS <i>(LITTLE OR NO FINES)</i>		SW
	SANDS WITH FINES <i>(APPRECIABLE AMOUNT OF FINES)</i>			SM	SILTY SANDS, SAND - SILT MIXTURES
				SC	CLAYEY SANDS, SAND - CLAY MIXTURES
	FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
SILTS AND CLAYS		LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

PARTICLE SIZE LIMITS

BOULDERS	COBBLES	GRAVEL		SAND			SILT OR CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE	
12"	3"	3/4"	No. 4	No. 10	No. 40	200	
(U.S. STANDARD SIEVE SIZE)							

SOIL CLASSIFICATION CHART

PROJECT	PROPOSED GAS STATION CANOPY & RESTAURANT	PROJECT NO. 12765.11
CLIENT:	PARMJIT SINGH	ENCLOSURE: B-ii
LOR Geotechnical Group, Inc.		DATE: OCTOBER 2018

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

LOG OF BORING B-1

TEST DATA

DEPTH IN FEET	SPT BLOW COUNTS	LABORATORY TESTS	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	SAMPLE TYPE	LITHOLOGY	U.S.C.S.
0							
11	1, 3, 4, 7, 11	4.0	96.8				ML
5	8, 19	7.3, 8.7	89.7, 101.0				CL
10	16, 21	9.0, 10.3	100.1, 102.2				ML
15	25	8.3	99.7				
20	42	10.5	106.4				
25	97 for 11"	11.3	116.7				CL
30	76	8.6	123.8				
35	58	3.9	117.7				
40	60	7.7	114.2				
45	75	8.6	119.4				
50	70	5.5	115.9				SM
55							

DESCRIPTION

@ 0 feet, **FILL/TOPSOIL: SANDY SILT**, approximately 5 gravel to 2", 10% coarse grained sand, 10% medium grained sand, 15% fine grained sand, 60% silty fines with trace clay, gray-brown, dry.

@ 2 feet, **ALLUVIUM: LEAN CLAY with SAND**, approximately 5% coarse grained sand, 10% medium grained sand, 15% fine grained sand, 70% clayey fines of low plasticity, gray-brown, dry, some pinhole and slightly larger porosity.

@ 5 feet, **SANDY SILT**, approximately approximately 5% coarse grained sand, 10% medium grained sand, 15% fine grained sand, 70% silty fines with trace clay, gray-brown, some thin calcite stringers, porous and dry.

@ 15 feet, moderately calcified, tan-white, remains porous and dry.

@ 25 feet, **LEAN CLAY with SAND**, approximately 5% coarse grained sand, 10% medium grained sand, 10% fine grained sand, 75% clayey fines of low plasticity, damp to moist, trace pinhole porosity, slightly indurated, red-brown.

@ 30 feet, difficult drilling, water added to facilitate drilling.

@ 35 feet, becomes moderately calcified, damp, tan-white.

@ 40 feet, becomes red-brown, damp, some thin calcite stringers.

@ 45 feet, decrease in clay content, trace calcite stringers.

@ 50 feet, **SILTY SAND**, approximately 5% gravel to 1/2", 20% coarse grained sand, 25% medium grained sand, 30% fine grained sand, 20% silty fines, yellow-brown, dry to damp.

END OF BORING @ 51.5'

Fill to 2'
No groundwater
No bedrock

PROJECT: Proposed Gas Station Canopy & Restaurant		PROJECT NUMBER: 12765.11	
CLIENT: Parmjit Singh		ELEVATION:	
LOR GEOTECHNICAL GROUP INC.		DATE DRILLED: October 26, 2018	
		EQUIPMENT: Mobile B-61	
		HOLE DIA.: 8"	ENCLOSURE: B-1

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

LOG OF BORING B-2

TEST DATA							U.S.C.S.	DESCRIPTION
DEPTH IN FEET	SPT BLOW COUNTS	LABORATORY TESTS	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	SAMPLE TYPE	LITHOLOGY		
0							ML	@ 0 feet, <u>FILL</u> : SANDY SILT, approximately 5% gravel to 1/2", 5% coarse grained sand, 10% medium grained sand, 10% fine grained sand, 70% silty fines, gray-brown, dry.
11	11		6.6	107.0			SM	@ 2 feet, SILTY SAND, approximately 25% coarse grained sand, 25% medium grained sand, 25% fine grained sand, 25% silty fines, brown, damp to moist.
5	6		11.2	96.5			ML	@ 5 feet, <u>ALLUVIUM</u> : SANDY SILT, approximately 15% fine grained sand, 85% silty fines, moist, brown, some pinhole porosity.
	12	2	8.1	97.3				@ 7 feet, becomes tan, dry, slightly larger than pinhole porosity.
10	18		7.1	104.9				@ 10 feet, trace thin calcite stringers.
	26		8.6	105.5				
15	33		6.8	102.0				@ 15 feet, becomes moderately calcite, tan-white, remains dry and slightly porous.
20	40		17.2	95.0				@ 20 feet, becomes moist.
25	59		8.3	117.0			CL	@ 25 feet, LEAN CLAY with SAND, approximately 5% coarse grained sand, 10% medium grained sand, 10% fine grained sand, 75% clayey fines of low plasticity, damp, red-brown, slightly indurated, some thin calcite stringers, trace pinhole porosity.
								END OF BORING @ 26.5'
30								Fill to 5' No groundwater No bedrock

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

PROJECT: Proposed Gas Station Canopy & Restaurant	PROJECT NUMBER: 12765.11
CLIENT: Parmjit Singh	ELEVATION:
LOR GEOTECHNICAL GROUP INC.	DATE DRILLED: October 26, 2018
	EQUIPMENT: Mobile B-61
	HOLE DIA.: 8" ENCLOSURE: B-2

LOG OF BORING B-3

TEST DATA							U.S.C.S.	DESCRIPTION
DEPTH IN FEET	SPT BLOW COUNTS	LABORATORY TESTS	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	SAMPLE TYPE	LITHOLOGY		
0							ML	@ 0 feet, <u>FILL</u> SANDY SILT, approximately 5% coarse grained sand, 5% medium grained sand, 15% fine grained sand, 75% silty fines, gray-brown, dry.
6	6		10.9	96.3	█			@ 2 feet, <u>ALLUVIUM</u> : SANDY SILT, approximately 5% coarse grained sand, 5% medium grained sand, 15% fine grained sand, 75% silty fines, brown, damp, some pinhole porosity and thin calcite stringers.
5	8		12.5	107.3	█			@ 5 feet, trace pinhole porosity, slightly calcified, tan-white, damp.
10	10		12.1	104.3	█			@ 7 feet, much less calcification as thin stringers, remains porous with pinhole and slightly larger porosity, damp.
10	11		11.9	105.3	█			
15	16		8.1	106.3	█			
15	27		17.2	99.5	█			@ 15 feet, slight increase in calcification, gray-white, remains porous, moist.
20	27		17.1	101.3	█			
25	62		9.8	122.0	█		CL	@ 25 feet, <u>LEAN CLAY</u> with SAND, approximately 5% coarse grained sand, 5% medium grained sand, 10% fine grained sand, 80% clayey fines of low plasticity, red-brown, damp to moist, trace pinhole porosity, trace thin calcite stringers, slightly indurated.
30								END OF BORING @ 26.5' Fill to 2' No groundwater No bedrock

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

PROJECT: Proposed Gas Station Canopy & Restaurant	PROJECT NUMBER: 12765.11
CLIENT: Parmjit Singh	ELEVATION:
LOR GEOTECHNICAL GROUP INC.	DATE DRILLED: October 26, 2018
	EQUIPMENT: Mobile B-61
	HOLE DIA.: 8" ENCLOSURE: B-3

APPENDIX C

Laboratory Testing Program and Test Results

APPENDIX C LABORATORY TESTING

General

Selected soil samples obtained from the borings were tested in our geotechnical laboratory to evaluate the physical properties of the soils affecting foundation design and construction procedures. The laboratory testing program performed in conjunction with our investigation included moisture content, dry density, laboratory compaction, consolidation, direct shear, sieve analysis, sand equivalent, R-value, expansion index, Atterberg limits, and soluble sulfate content. Descriptions of the laboratory tests are presented in the following paragraphs:

Moisture Density Tests

The moisture content and dry density information provides an indirect measure of soil consistency for each stratum, and can also provide a correlation between soils on this site. The dry unit weight and field moisture content were determined for selected undisturbed samples, in accordance with ASTM D 2921 and ASTM D 2216, respectively, and the results are shown on the boring logs, Enclosures B-1 through B-3, for convenient correlation with the soil profile.

Laboratory Compaction

Selected soil samples were tested in the laboratory to determine compaction characteristics using the ASTM D 1557 compaction test method. The results are presented in the following table:

LABORATORY COMPACTION				
Boring Number	Sample Depth (feet)	Soil Description U.S.C.S.	Maximum Dry Density (pcf)	Optimum Moisture Content (percent)
B-1	1-3	(CL) Lean Clay with Sand	126.5	10.5

Consolidation Tests

The apparatus used for the consolidation tests (odometer) is designed to test a one-inch high portion of the undisturbed soil sample as contained in a sample ring. Porous stones and filler paper are placed in contact with the top and bottom of the specimen to permit the addition or release of water. Loads are applied to the test specimen in specified increments, and the resulting axial deformations are recorded. The results are plotted as log of axial pressure versus consolidation or compression, expressed as strain or sample height.

Samples are tested at field and greater-than field moisture contents. The results are shown on Enclosures C-1 through C-4.

Direct Shear Tests

Shear tests are performed in general accordance with ASTM D 3080 with a direct shear machine at a constant rate-of-strain (0.04 inches/minute). The machine is designed to test a sample partially extruded from a sample ring in single shear. Samples are tested at varying normal loads in order to evaluate the shear strength parameters, angle of internal friction and cohesion. Samples are tested in remolded condition (90 percent relative compaction per ASTM D 1557) and soaked, to represent the worse case conditions expected in the field.

The results of the shear tests are presented in the following table:

DIRECT SHEAR TESTS				
Boring Number	Sample Depth (feet)	Soil Description U.S.C.S.	Angle of Internal Friction (degrees)	Apparent Cohesion (psf)
B-1	1-3	(CL) Lean Clay with Sand	27	250

Sieve Analysis

A quantitative determination of the grain size distribution was performed for selected samples in accordance with the ASTM D 422 laboratory test procedure. The determination is performed by passing the soil through a series of sieves, and recording the weights of retained particles on each screen. The results of the sieve analyses are presented graphically on Enclosure C-5.

Sand Equivalent

The sand equivalent of selected soils were evaluated using the California Sand Equivalent Test Method, Caltrans Number 217. The results of the sand equivalent tests are presented with the grain size distribution analyses on Enclosure C-5.

R-Value Test

Soil samples were obtained at probable pavement subgrade level and sieve analysis and sand equivalent tests were conducted. Based on these indicator tests, a selected soil sample was tested to determine its R-value using the California R-Value Test Method, Caltrans Number 301. The results of the sieve analysis, sand equivalent, and R-value tests are presented on Enclosure C-5.

Expansion Index Tests

Remolded samples are tested to determine their expansion potential in accordance with the Expansion Index (EI) test. The test is performed in accordance with the Uniform Building Code Standard 18-2. The test results are presented in the following table:

EXPANSION INDEX TESTS				
Boring Number	Sample Depth (feet)	Soil Description U.S.C.S.	Expansion Index (EI)	Expansion Potential
B-1	1-3	(CL) Lean Clay with Sand	Low	34
Expansion Index: 0-20 21-50 51-90 91-130				
Expansion Potential: Very low Low Medium High				

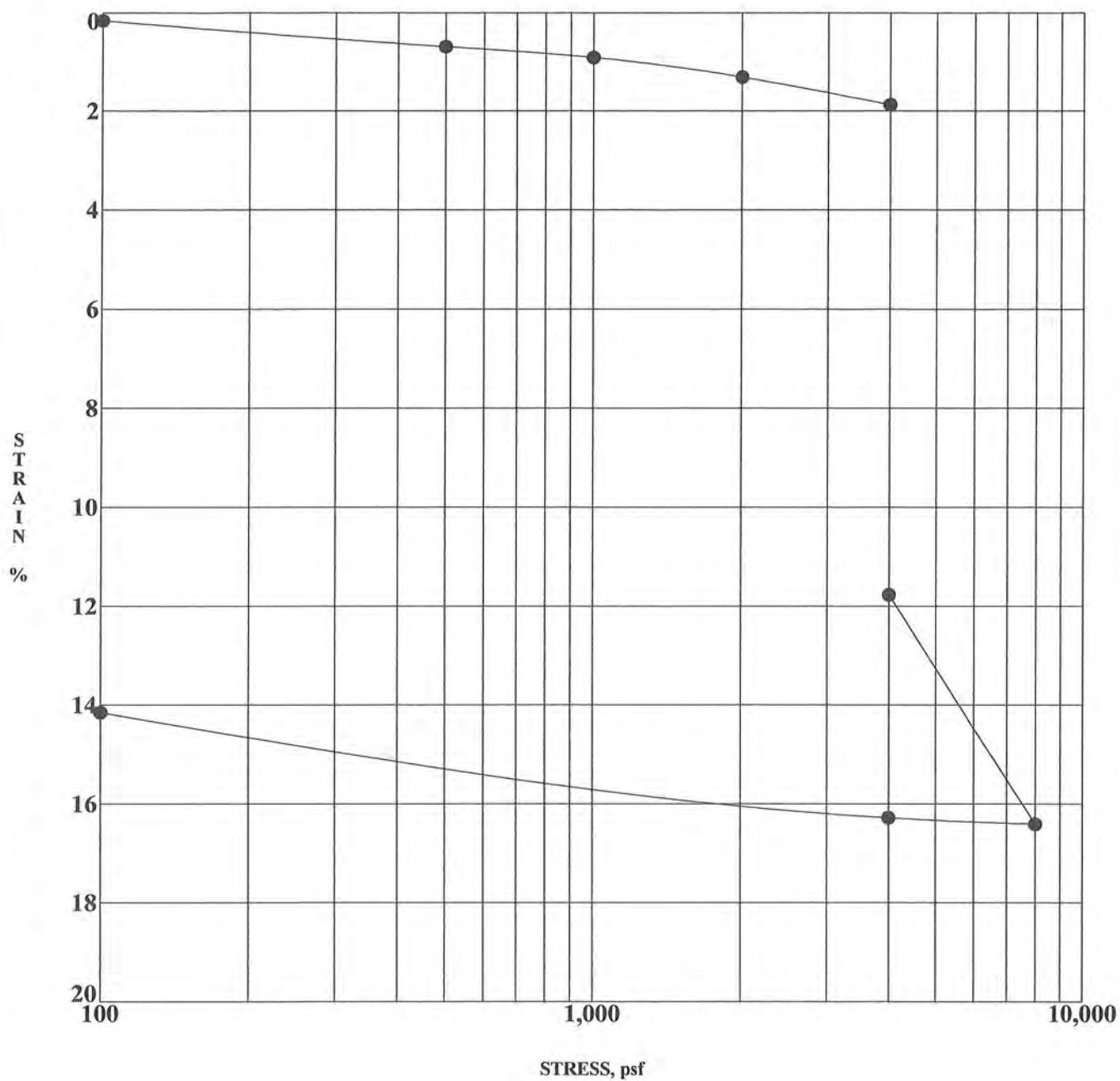
Atterberg Limits

Selected samples of the son-site fine grained soils were tested for their Atterberg limits in accordance with ASTM D 4318. The results of these tests are presented on Enclosure C-6.

Soluble Sulfate Content Tests

The soluble sulfate content of selected subgrade soils were evaluated. The concentration of soluble sulfates in the soils was determined by measuring the optical density of a barium sulfate precipitate. The precipitate results from a reaction of barium chloride with water extractions from the soil samples. The measured optical density is correlated with readings on precipitates of known sulfate concentrations. The test results are presented on the following table:

SOLUBLE SULFATE CONTENT TESTS			
Boring Number	Sample Depth (feet)	Soil Description U.S.C.S.	Sulfate Content (percent by weight)
B-1	1-3	(CL) Lean Clay with Sand	<0.005



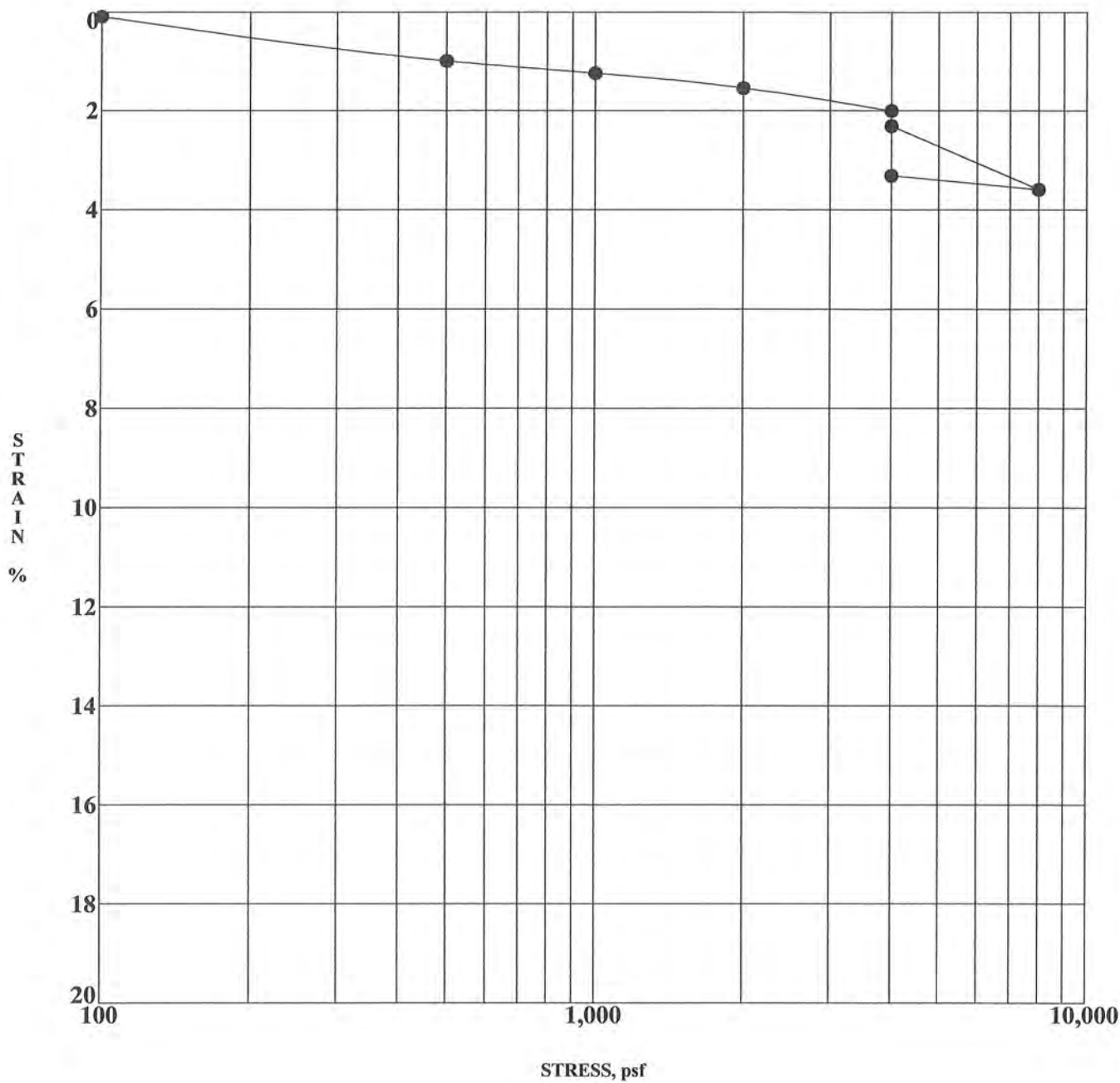
Specimen Identification	Classification	DD	MC%
● B-1 5.0	(ML) Sandy Silt	94	4

PROJECT Proposed Gas Station Canopy & Restaurant, Existing Farm Market PROJECT NO. 12765.11
 DATE 11/16/18

CONSOLIDATION TEST
 LOR Geotechnical Group, Inc.

ENCLOSURE C-1

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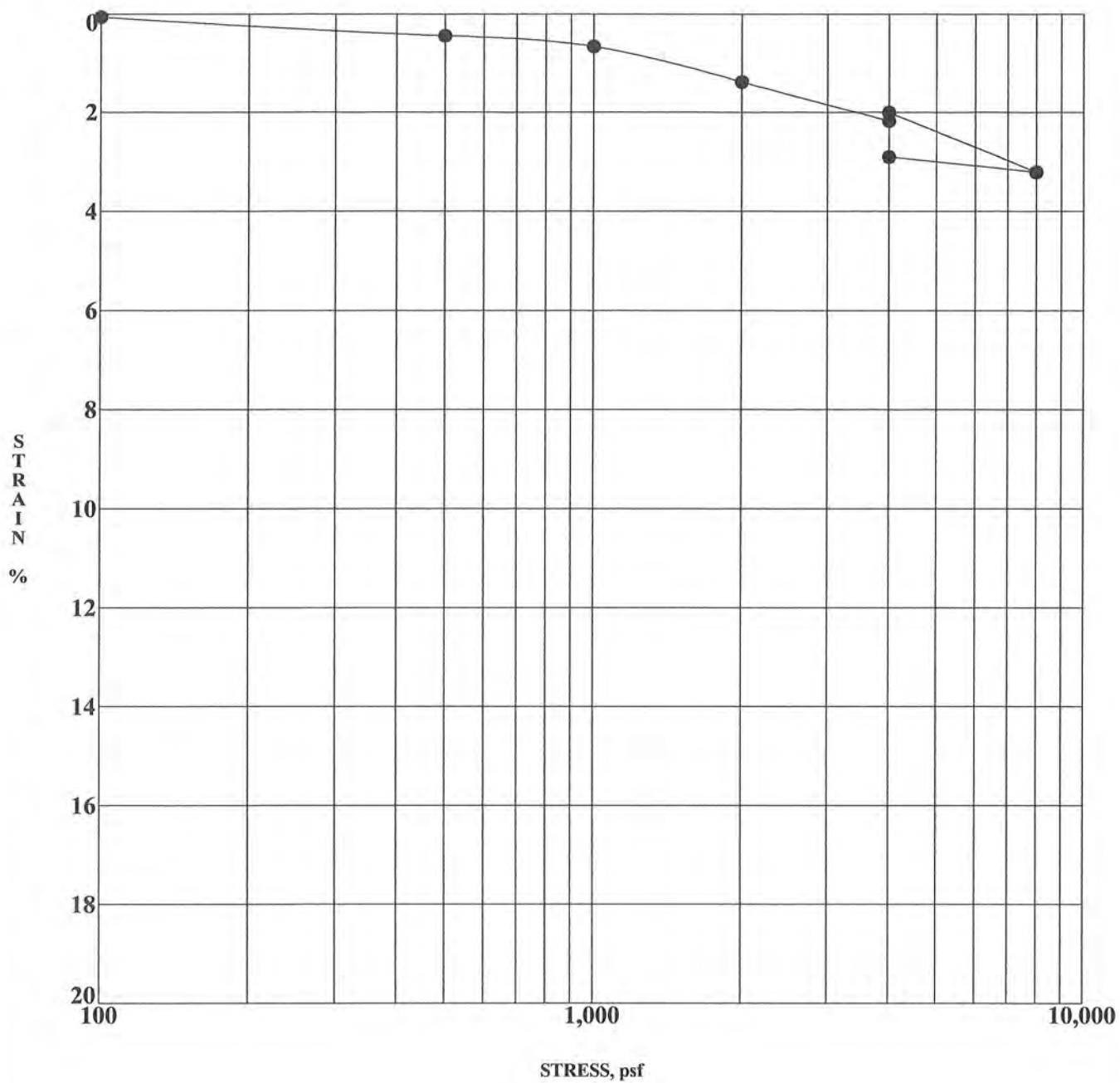
Specimen Identification		Classification	DD	MC%
●	B-1 10.0	(ML) Sandy Silt	107	9

PROJECT Proposed Gas Station Canopy & Restaurant,
Existing Farm Market

PROJECT NO. 12765.11
DATE 11/16/18

CONSOLIDATION TEST
LOR Geotechnical Group, Inc.

ENCLOSURE C-2



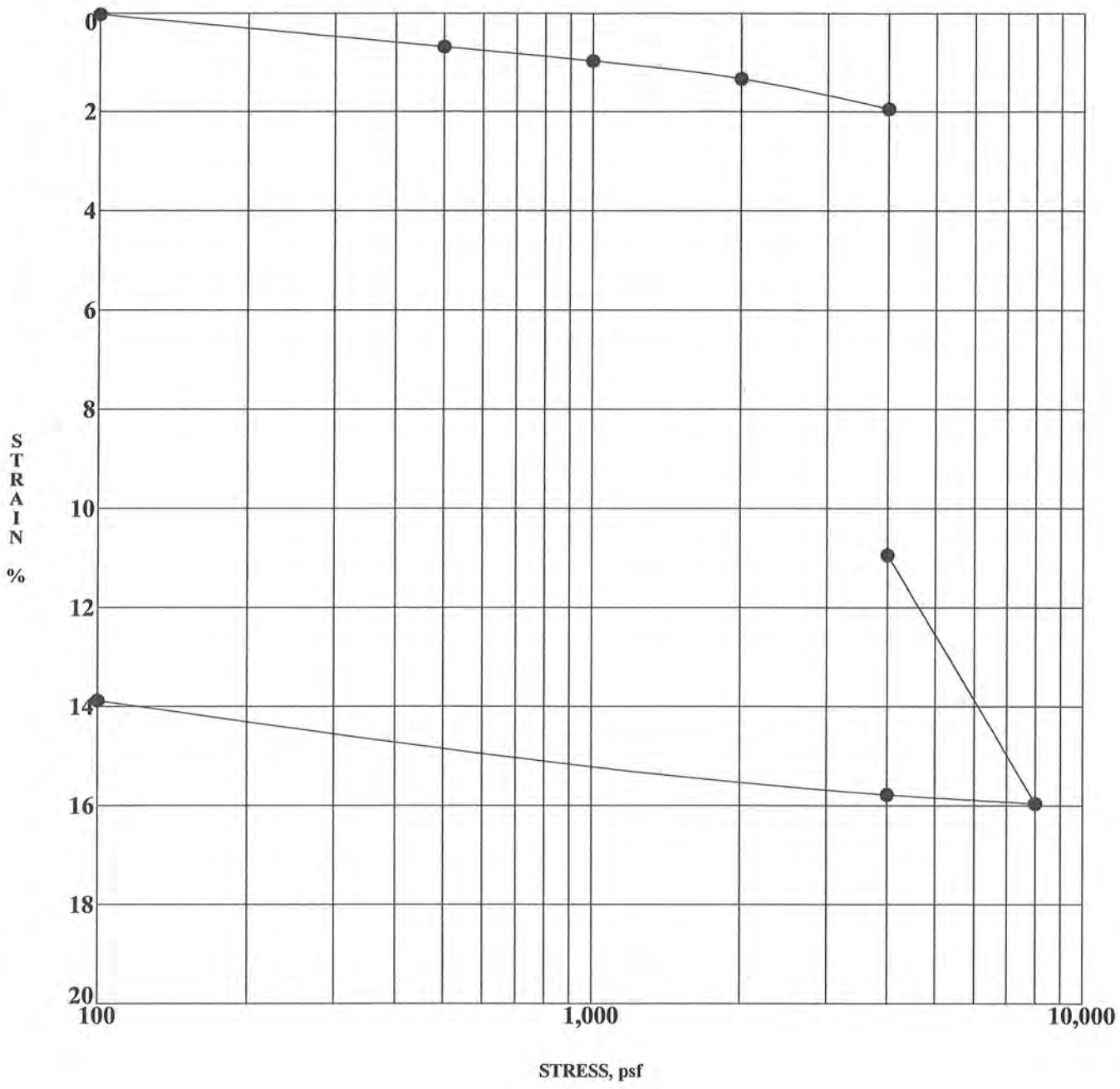
Specimen Identification			Classification	DD	MC%
●	B-1	15.0	(ML) Sandy Silt	102	8

PROJECT Proposed Gas Station Canopy & Restaurant, Existing Farm Market PROJECT NO. 12765.11
 DATE 11/16/18

CONSOLIDATION TEST
 LOR Geotechnical Group, Inc.

ENCLOSURE C-3

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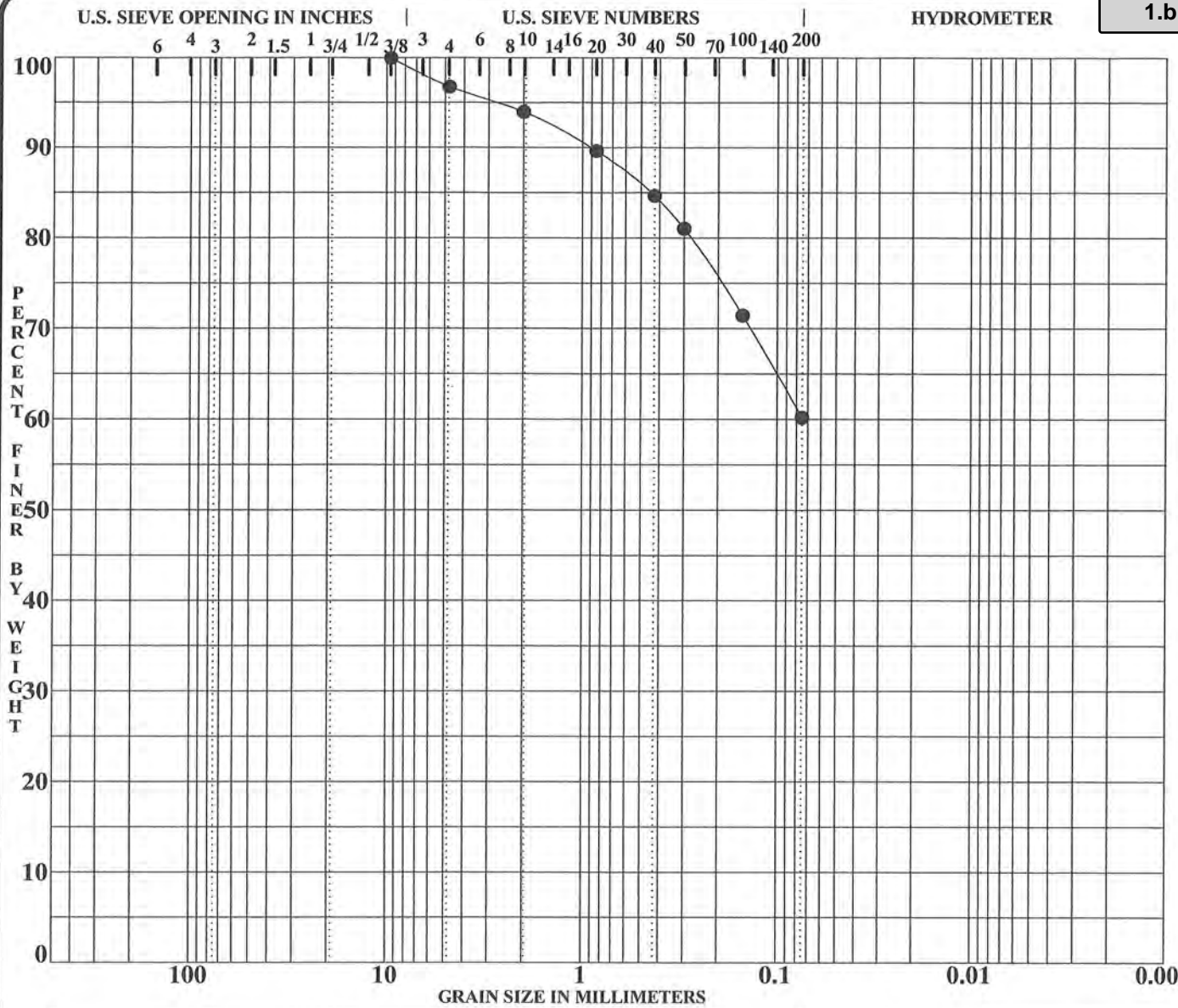
Specimen Identification	Classification	DD	MC%
● B-2 7.0	(ML) Sandy Silt	91	8

PROJECT Proposed Gas Station Canopy & Restaurant, Existing Farm Market PROJECT NO. 12765.11
 DATE 11/16/18

CONSOLIDATION TEST
 LOR Geotechnical Group, Inc.

ENCLOSURE C-4

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COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification	Soil Classification	SE	RV	PL	PI	Cc	Cu
● RV-1 @ 0-3 ft	(ML) Sandy Silt	8	19				

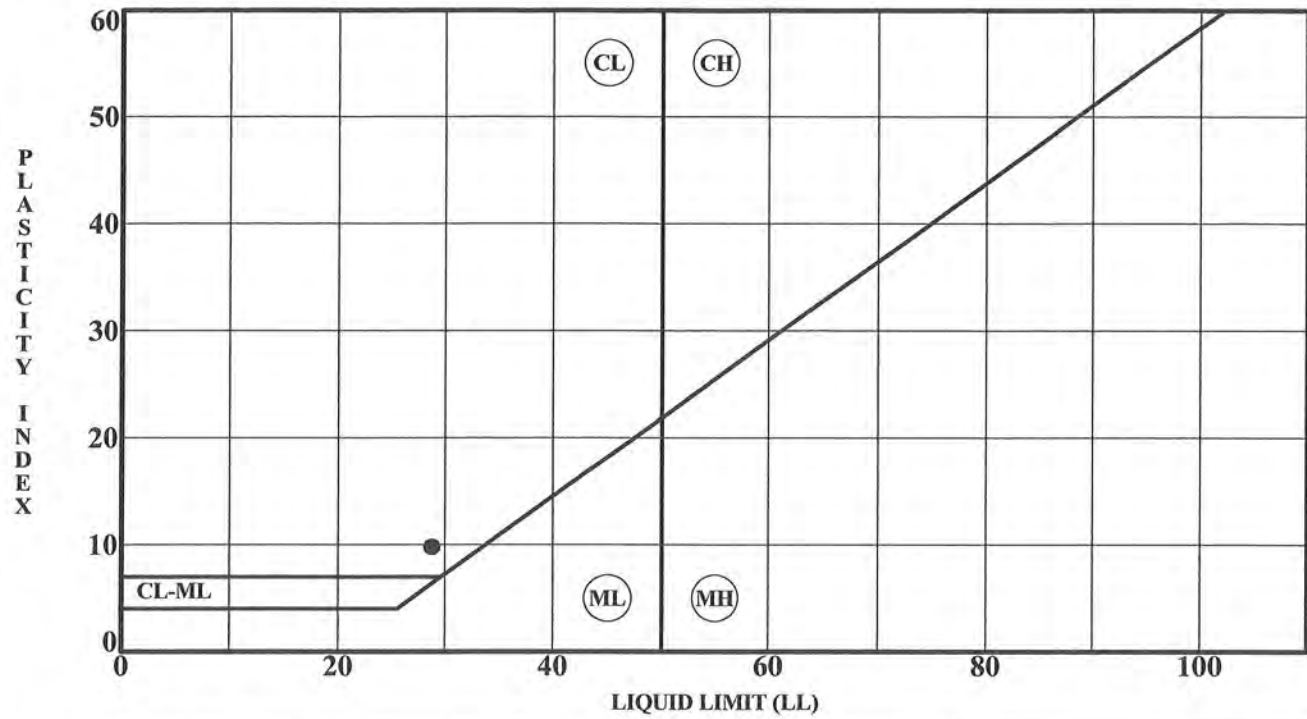
Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● RV-1 @ 0-3 ft	9.50				3.2	36.6	60.2	

PROJECT *Proposed Gas Station Canopy & Restaurant, Existing Farm Market* PROJECT NO. 12765.11
 DATE 11/16/18

GRADATION CURVES
 LOR Geotechnical Group, Inc.

ENCLOSURE C-5

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)



Specimen Identification	LL	PL	PI	Fines	Soil Classification
● B-1 @ 1 - 3 ft	29	19	10		(CL) Lean Clay with Sand

PROJECT Proposed Gas Station Canopy & Restaurant PROJECT NO. 12765.11
DATE 11/20/18

ATTERBERG LIMITS' RESULTS
LOR Geotechnical Group, Inc.

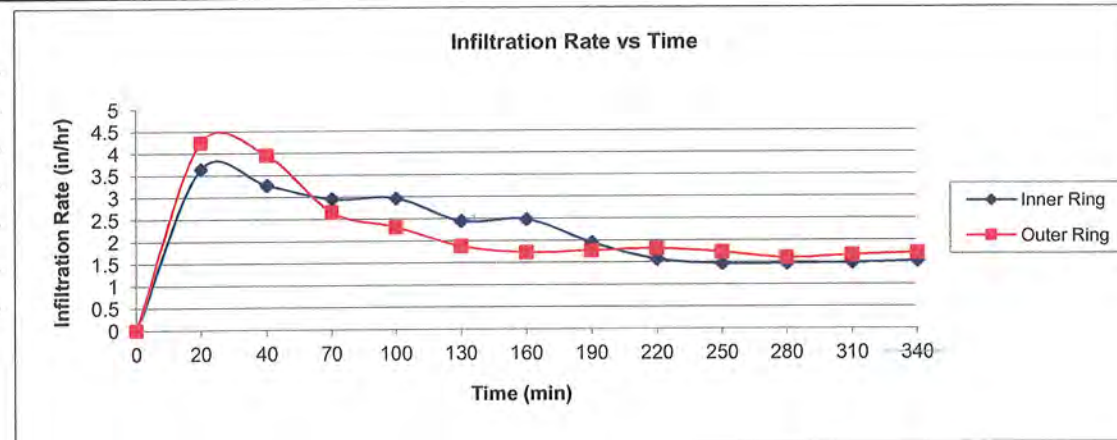
ENCLOSURE C-6

APPENDIX D
Infiltration Test Results

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

DOUBLE RING INFILTRMETER TEST DATA

Project:	Proposed Gas Station and Restaurant	Test Date:	October 29, 2018
Project No.:	12765.11	Test Hole No.:	DRI-1
Soil Classification:	(ML) Sandy Silt	Test Hole Diameter:	12 in. inner, 24 in. annular
Depth of Test Hole:	4 ft.	Date Excavated:	October 29, 2018
Liquid Used:	Tap Water	pH:	7.8
Area of Rings:	Inner = 0.785 ft ² , Annular 2.36 ft ²	Depth of Water in Rings:	3.5 in
Tested By:	A.L.	Ring Penetration:	3.5 in
Liquid Level Maintained Using:	Vacuum Seal		
Depth to Water Table:	100 ft		



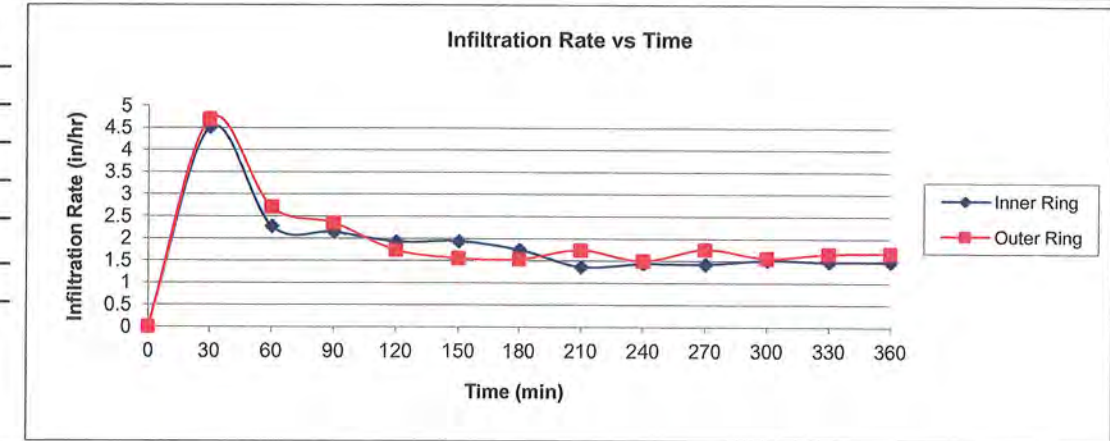
TEST PERIOD																
TRIAL NO.	INNER			ANNULAR SPACE			WATER USED (lbs.)		WATER USED (gal)		INFILTRATION RATE (gal/sf.day)		INFILTRATION RATE (in/hr)		LIQUID TEMP (°F)	REMARKS
	TIME	TIME INTERVAL (minutes)	TOTAL ELAPSED TIME (minutes)	TIME	TIME INTERVAL (minutes)	TOTAL ELAPSED TIME (minutes)	inner	annular space	inner	annular space	inner	annular space	inner	annular space		
1	S	8:40	20	20	8:40	20	4.94	17.28	0.593	2.074	54.4	63.3	3.6	4.2	64	
	E	9:00			9:00										65	
2	S	9:00	20	40	9:00	20	4.44	16.11	0.533	1.934	48.9	59.0	3.3	4.0	66	
	E	9:20			9:20										66	
3	S	9:22	30	70	9:22	30	6.01	16.24	0.721	1.950	44.1	39.7	3.0	2.7	67	refilled outer
	E	9:52			9:52										67	
4	S	9:52	30	100	9:52	30	6.03	14.14	0.724	1.697	44.3	34.5	3.0	2.3	68	
	E	10:22			10:22										68	
5	S	10:26	30	130	10:26	30	4.97	11.48	0.597	1.378	36.5	28.0	2.4	1.9	69	refilled outer
	E	10:56			10:56										69	
6	S	10:56	30	160	10:56	30	5.04	10.58	0.605	1.270	37.0	25.8	2.5	1.7	71	
	E	11:26			11:26										72	
7	S	11:26	30	190	11:26	30	3.96	10.81	0.475	1.298	29.1	26.4	1.9	1.8	73	
	E	11:56			11:56										74	
8	S	12:00	30	220	12:00	30	3.19	11.08	0.383	1.330	23.4	27.1	1.6	1.8	75	refilled outer
	E	12:30			12:30										75	
9	S	12:30	30	250	12:30	30	2.98	10.57	0.358	1.269	21.9	25.8	1.5	1.7	76	
	E	13:00			13:00										76	
10	S	13:00	30	280	13:00	30	2.99	9.77	0.359	1.173	21.9	23.9	1.5	1.6	77	
	E	13:30			13:30										77	
11	S	13:30	30	310	13:30	30	3.03	10.13	0.364	1.216	22.2	24.7	1.5	1.7	78	
	E	14:00			14:00										78	
12	S	14:00	30	340	14:00	30	3.09	10.43	0.371	1.252	22.7	25.5	1.5	1.7	78	
	E	14:30			14:30										78	

Enclosure D-1

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

DOUBLE RING INFILTROMETER TEST DATA

Project:	Proposed Gas Station and Restaurant	Test Date:	October 29, 2018
Project No.:	12765.11	Test Hole No.:	DRI-2
Soil Classification:	(ML) Sandy Silt	Test Hole Diameter:	12 in. inner, 24 in. annular
Depth of Test Hole:	4 ft	Date Excavated:	October 29, 2018
Liquid Used:	Tap Water	pH:	7.8
Area of Rings:	Inner = 0.785 ft ² , Annular 2.36 ft ²	Depth of Water in Rings:	4 in
Tested By:	A.L.	Ring Penetration:	3.5 in
Liquid Level Maintained Using:	Vacuum Seal		
Depth to Water Table:	100 ft		



TEST PERIOD																
TRIAL NO.	INNER			ANNULAR SPACE			WATER USED (lbs.)		WATER USED (gal)		INFILTRATION RATE (gal/sf.day)		INFILTRATION RATE (in/hr)		LIQUID TEMP (°F)	REMARKS
	TIME	TIME INTERVAL (minutes)	TOTAL ELAPSED TIME (minutes)	TIME	TIME INTERVAL (minutes)	TOTAL ELAPSED TIME (minutes)	inner	annular space	inner	annular space	inner	annular space	inner	annular space		
1	S	8:58	30	8:58	30	30	9.18	28.71	1.102	3.447	67.4	70.1	4.5	4.7	65	
	E	9:28														
2	S	9:30	30	9:30	30	60	4.62	16.55	0.555	1.987	33.9	40.4	2.3	2.7	66	
	E	10:00														
3	S	10:00	30	10:00	30	90	4.36	14.34	0.523	1.721	32.0	35.0	2.1	2.3	67	refilled outer
	E	10:30														
4	S	10:34	30	10:34	30	120	3.92	10.61	0.471	1.274	28.8	25.9	1.9	1.7	68	
	E	11:04														
5	S	11:04	30	11:04	30	150	3.94	9.51	0.473	1.142	28.9	23.2	1.9	1.6	69	refilled outer
	E	11:34														
6	S	11:34	30	11:34	30	180	3.55	9.36	0.426	1.124	26.1	22.9	1.7	1.5	71	
	E	12:04														
7	S	12:08	30	12:08	30	210	2.77	10.62	0.333	1.275	20.3	25.9	1.4	1.7	73	refilled outer
	E	12:38														
8	S	12:38	30	12:38	30	240	2.92	9.15	0.351	1.098	21.4	22.3	1.4	1.5	75	
	E	13:08														
9	S	13:08	30	13:08	30	270	2.90	10.73	0.348	1.288	21.3	26.2	1.4	1.8	76	
	E	13:38														
10	S	13:38	30	13:38	30	300	3.08	9.55	0.370	1.146	22.6	23.3	1.5	1.6	77	
	E	14:08														
11	S	14:10	30	14:10	30	330	3.01	10.14	0.361	1.217	22.1	24.8	1.5	1.7	78	refilled outer
	E	14:40														
12	S	14:40	30	14:40	30	360	3.02	10.22	0.363	1.227	22.2	25.0	1.5	1.7	79	
	E	15:10														

Appendix F - Hydrology Analysis and Water Quality Management Plan

Preliminary Hydrology Study 14058 Redlands Blvd Farm Market Expansion and Gas Station

Prepared for

Parmjit Singh



July 2020



PRELIMINARY HYDROLOGY ANALYSIS MORENO VALLEY FARM MARKET EXPANSION

FOR

PARMJIT SINGH
10458 REDLANDS BOULEVARD
MORENO VALLEY, CA. 92555

CITY OF MORENO VALLEY
COUNTY OF RIVERSIDE
CALIFORNIA

PREPARED BY:



22421 BARTON ROAD # 125
GRAND TERRACE, CA 92313
BRIAN LOWELL, PE, QSD, QSP



Brian R. Lowell, R.C.E. 74550

Date Prepared: July 2020

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

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SECTION 1 - Summary

Introduction

The purpose of this report is to present the backup hydrology that will be used for the planning phase of the Moreno Valley Farm Market Expansion and Gas Station project in the City of Moreno Valley. The proposed residential development is located in the eastern portion of the City of Moreno Valley, Riverside County, California on a 1.6 acre parcel owned by Mr. Parmjit Singh. The parcel is bounded by Alessandro Boulevard to the north, residential houses to the east, Kimberly Avenue to the south and Redlands Boulevard to the west.

Existing Conditions

The project site consists of vacant undeveloped land. This area is comprised of hydrologic soil type 'A', as is shown on the included soils map. A preliminary geotechnical investigation was prepared for the site by LOR Geotechnical Group, Inc, on November 21, 2018, which determined that there is hydro-collapsible alluvial soil present on-site. The project site is located within the Santa Jacinto Valley Sub-watershed (HCU8) portion of the Santa Ana River Watershed. The site is situated north of San Jacinto River approximately ten miles north of its confluence with Perris Valley Channel. The topography of the site is generally flat with elevations ranging from approximately 1,601 feet to 1,593 feet above mean sea level.

Proposed Drainage Facilities

This development proposes the addition of a four pump gas station and a single 3,850 square foot commercial building. The single building is intended to be sub-divided into one 1,500 square foot commercial suite and one 2,350 square foot restaurant. Approximately 8,400 s.f. of existing concrete parking lot and 9,750 sf of existing landscaping will be removed and reconfigured. Approximately 3,860 sf of landscaping, 6,480 sf of existing pavement and 6,100 sf of existing buildings will remain. The proposed project will have approximately 49,201 s.f. of impervious area and 20,682 s.f. of pervious landscaping. The existing site surface flows southwest onto Redlands Boulevard. All run-off from the portions of the site that are remaining undisturbed will follow the existing drainage path to the south west, and will be captured by a new grated inlet and direct this run-off underground easterly to a new underground storage vault where it will comingle with the proposed development run-off. New improvements will direct run-off via surface flow and underground drain lines south east to a proposed underground storage vault that is connected to a Modular Wetland System. The water quality volume will be captured, retained and metered out through the MWS where water quality objectives will be met. Ultimately, all flows will join the existing 54-inch MS4 storm drain system within Redlands Boulevard, where it will follow the natural drainage path of the San Jacinto River Basin to Lake Elsinore, which is classified as a regional sump.

Due to the presence of hydro-collapsible soils at the site and adjacent properties, infiltration of water into the upper approximately 10 to 12 feet is not recommended. While the remedial grading recommended within this report is anticipated to mitigate such soils within the proposed building areas of the site, the presence of hydro-collapsible soils on neighboring properties is most likely and the introduction of water into such soils could have an adverse effect on those developments. During the initial site preparation, all existing uncontrolled fills and loose, hydro-collapsible alluvial materials will be removed and recompact. Removals are anticipated to be on the order of 10 to 12 feet will be required to encounter competent alluvium. After removal and recompaction, hydro collapsible soil condition will be remedied and no longer be a concern for on-site improvements. Additionally, any incidental water introduced to the sub-soil due to leakage from the storm trap system, will infiltrate into the native soil and not adversely affect the structural integrity of the soil on-site.

The proposed facilities are designed to convey the 100-year storm event, we have analyzed the site based on the existing and developed conditions for the 10-year, and 100-year storm events. RCFC&WCD rational and unit hydrograph methodologies were utilized to determine existing and developed flow rates. The results of this analysis are summarized in the following tables.

■ Drainage Management Area 'A'

The proposed development will increase the peak flow rate and volume of storm water run-off. In all of the storms modeled, the peak flow rate remained, for all intents and purposes, unchanged (+/- 0.4 cfs).

BASIN 'A' - UNIT HYDROGRAPH - PEAK FLOW RATE (cfs)				
	10 YEAR		100 YEAR	
	EXISTING	DEVELOPED	EXISTING	DEVELOPED
1 HOUR	3.2	3.6	5.4	5.8
3 HOUR	1.5	1.6	2.6	2.7
6 HOUR	1.4	1.6	2.4	2.5
24 HOUR	0.3	0.4	0.8	0.9

The largest storm volume increase was experienced during the 10 year 24 hour storm event, where the anticipated run-off is increased by 0.12 acre feet from the natural condition. This increase is being mitigated by the proposed underground storage vault located in the southeast corner of the site. Basin routing calculations will be provided during the final engineering.

BASIN 'A' - UNIT HYDROGRAPH – STORM VOLUME (ac-ft)				
	10 YEAR		100 YEAR	
	EXISTING	DEVELOPED	EXISTING	DEVELOPED
1 HOUR	0.07	0.09	0.14	0.15
3 HOUR	0.08	0.12	0.19	0.21
6 HOUR	0.11	0.17	0.23	0.27
24 HOUR	0.15	0.27	0.36	0.45

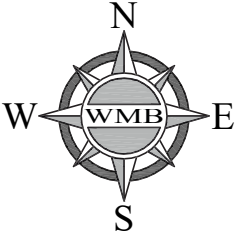
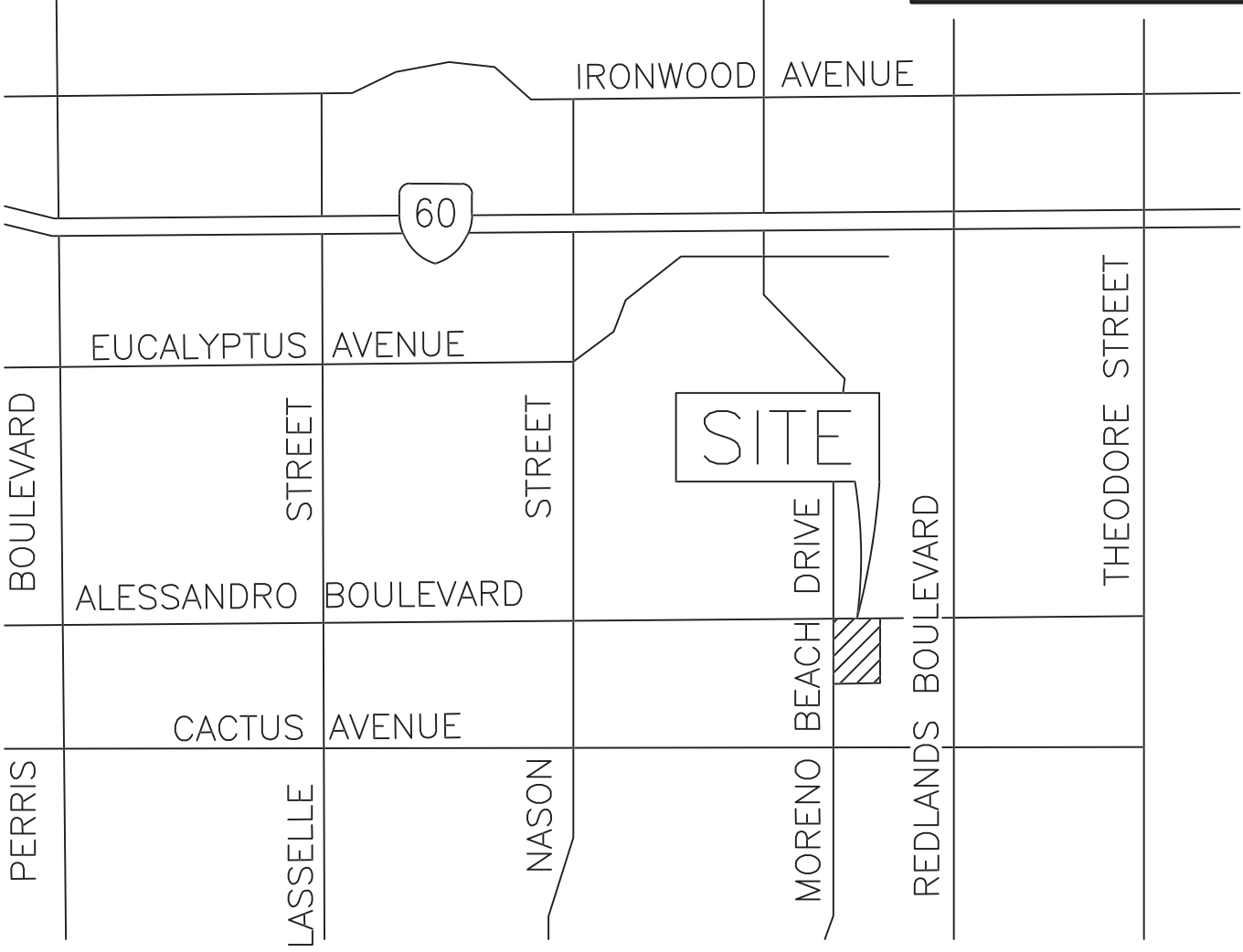
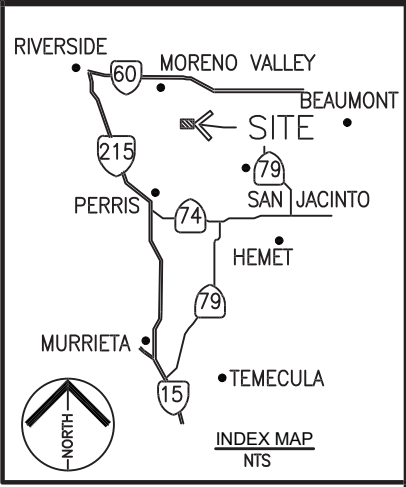
Methodology

This hydrology report is to be used only to analyze flow to, through, and out of the site using the Riverside County Rational Method. In regard to pipe sizing, the hydrology programs were utilized only as a tool for obtaining preliminary sizing of the storm drain facilities by allowing the program to determine minimum pipe sizes. The actual storm drain system and pipe sizes shall be designed per Riverside County Flood Control District criteria. Civil Design Version 7.0 Computer Software Program and AES Engineering Software 2011 version were used in generating the hydrological and hydraulic analysis for this report.

Conclusion

The development of this project does not propose a significant change over the existing conditions as illustrated in the previous tables. Peak flow rates however, did increase as would be expected with the addition of impervious area. This increase in flow rate and any increase in run-off volume will be mitigated by the proposed underground storage vault.

Based upon the results of this report, it is concluded that drainage facilities discussed above will adequately protect the site area from flood damage associated with the 100-year storm event. The proposed facilities, with ultimate development and adequate maintenance, will convey flows safely through the site area in accordance with Riverside County requirements.



NOT TO SCALE

FIGURE 1 VICINITY MAP

WMB & ASSOCIATES
 SURVEYING \ ENGINEERING \ PLANNING
 22421 BARTON ROAD #125
 GRAND TERRACE, CA 92313 (951)533-1871
 SURVEYING/ENGINEERING/PLANNING

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)



Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

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 22421 BARTON ROAD #125
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 SURVEYING/ENGINEERING/PLANNING

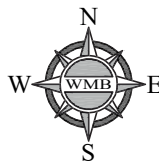
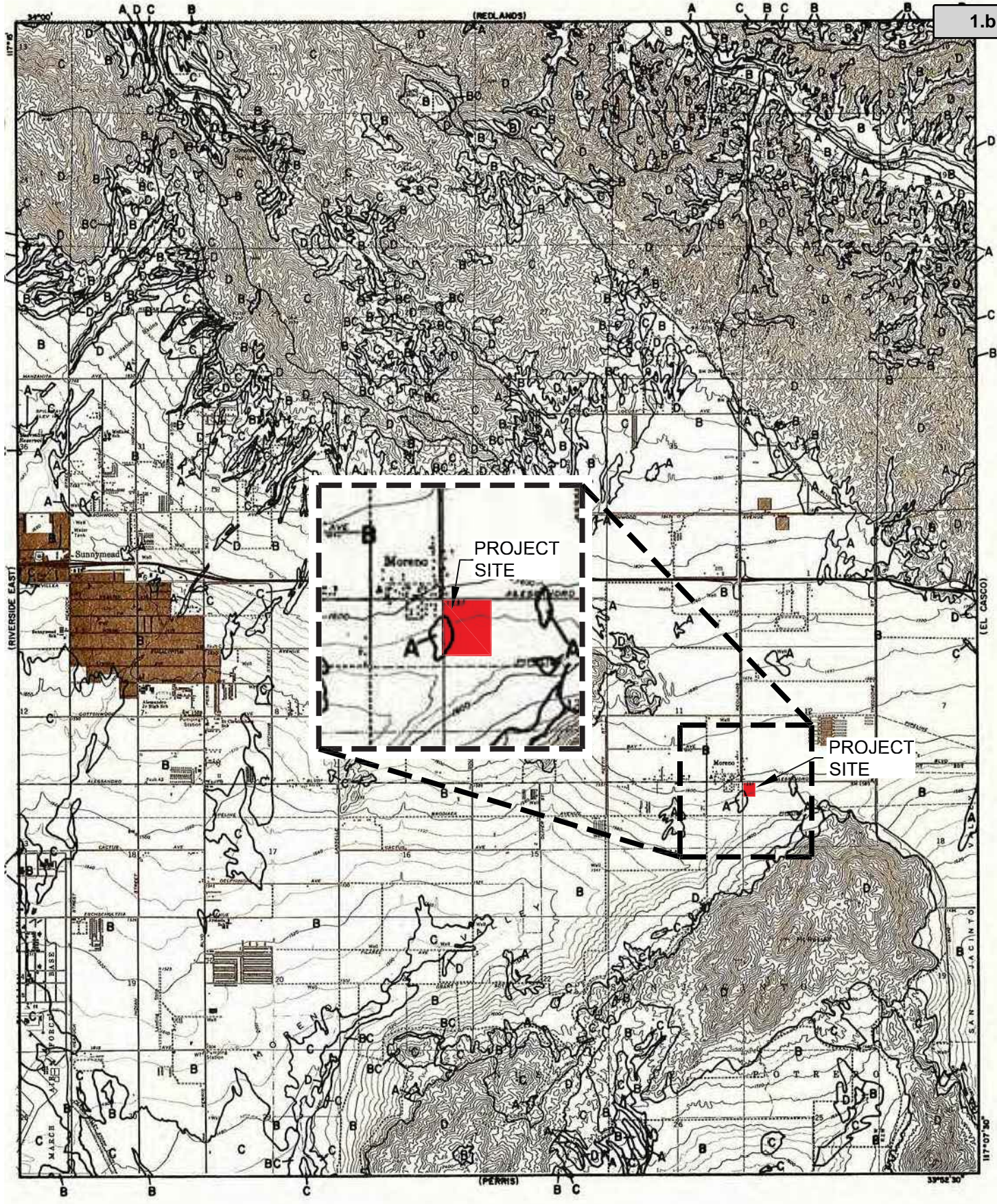


FIGURE 2 AERIAL PHOTOGRAPH

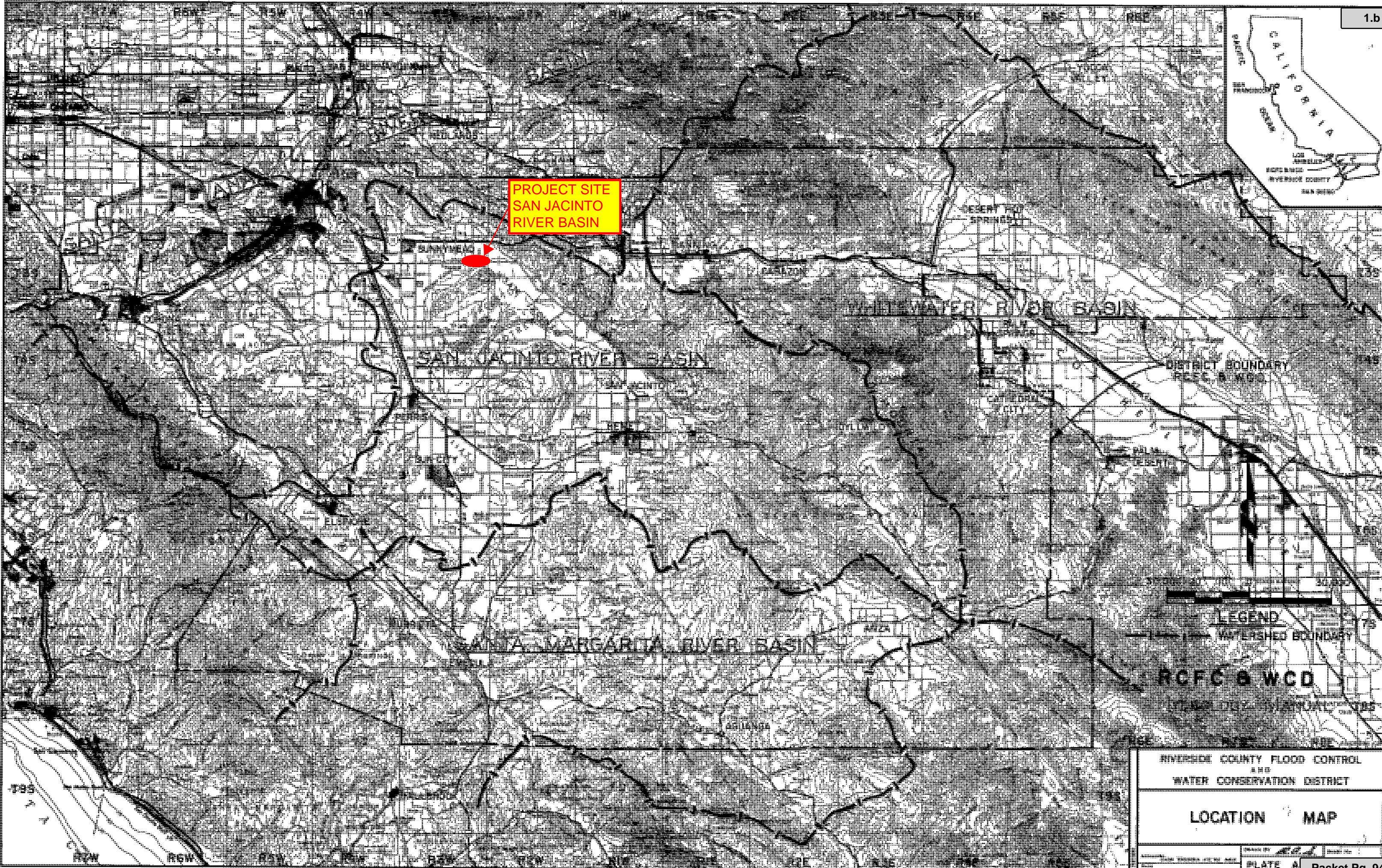
SECTION 2 - Riverside County Flood Control Data

- Soils Group Map
- Slope-Intensity Duration Curve
- Intensity Duration Curve

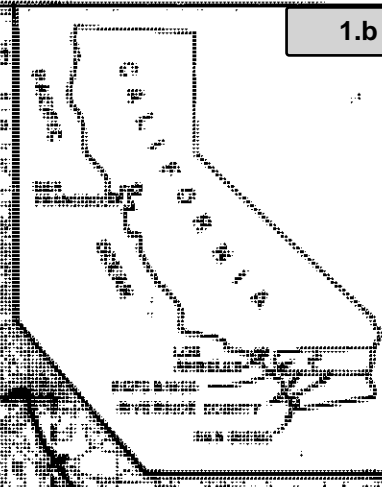


Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

<p>LEGEND</p> <p>— SOILS GROUP BOUNDARY</p> <p>A SOILS GROUP DESIGNATION</p> <p>RCFC & WCD</p> <p>HYDROLOGY MANUAL</p>	<p>0 FEET 5000</p>	<p>HYDROLOGIC SOILS GROUP MAP</p> <p>FOR</p> <p>SUNNYMEAD</p>
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**PROJECT SITE
SAN JACINTO
RIVER BASIN**



LEGEND
 DISTRICT BOUNDARY
 WATERSHED BOUNDARY

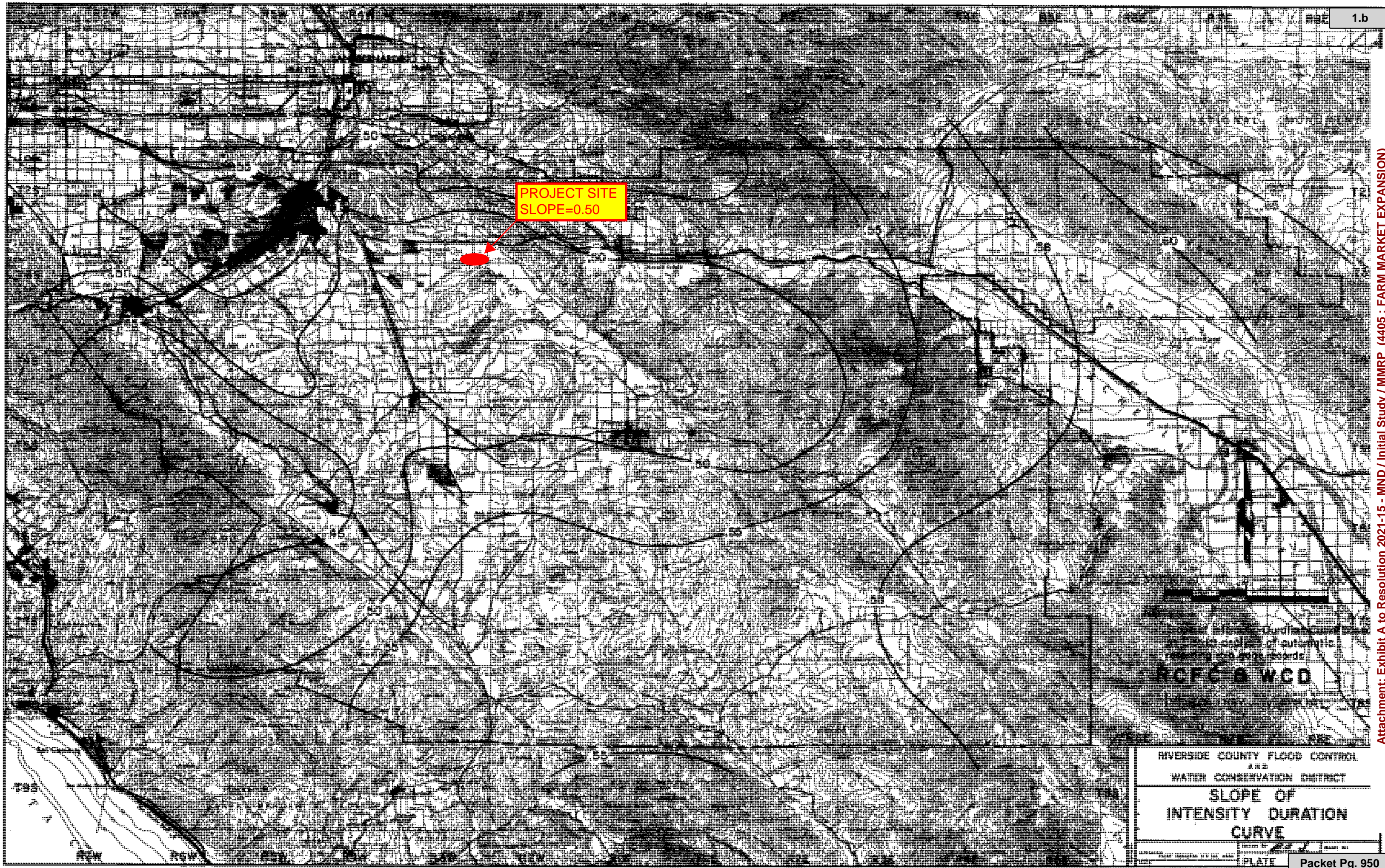
RCFC & WCD

RIVERSIDE COUNTY FLOOD CONTROL
 AND
 WATER CONSERVATION DISTRICT

LOCATION MAP

PLATE A

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)



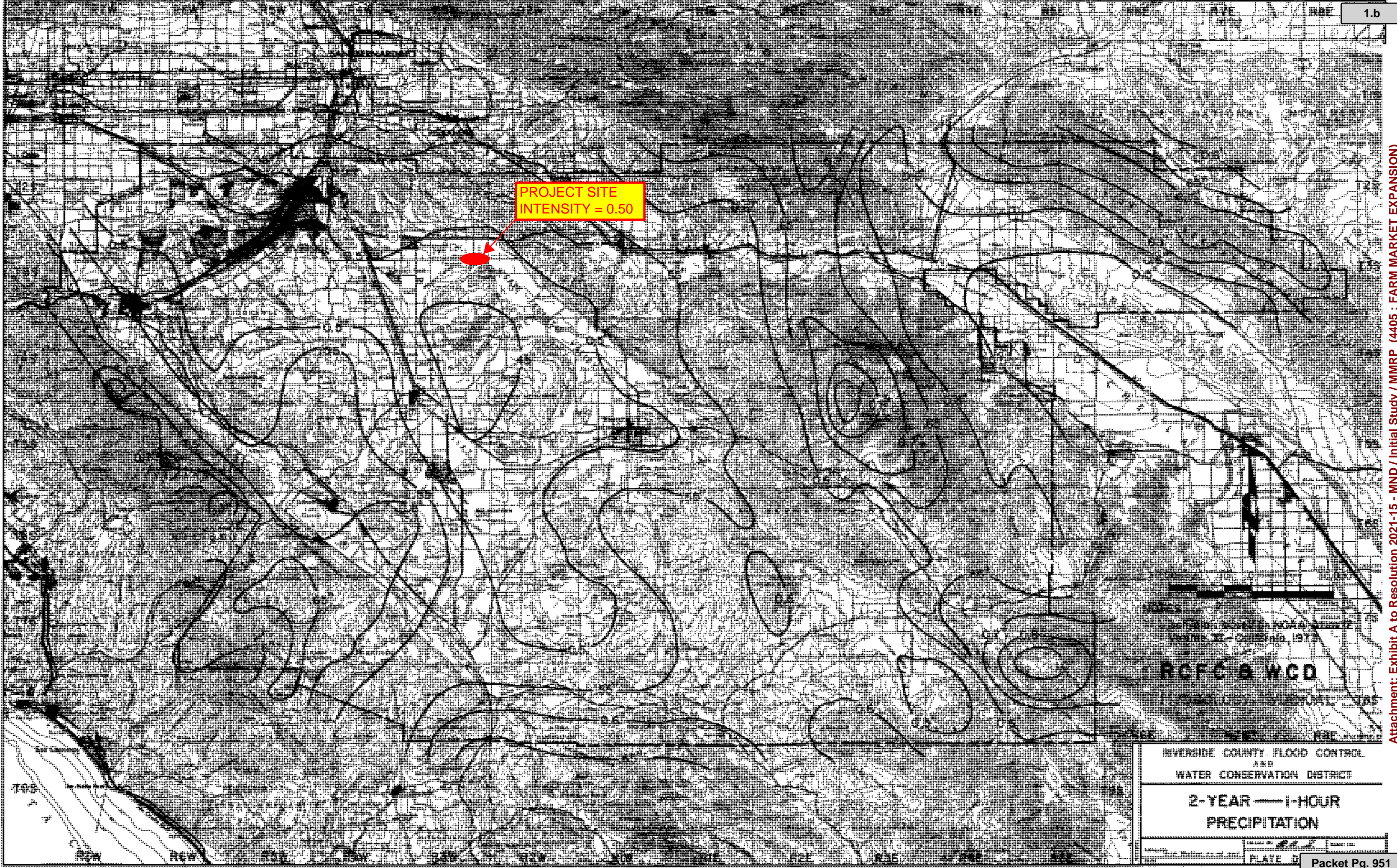
PROJECT SITE
SLOPE=0.50

... of ...
... of ...
...
RCFC & WCD

RIVERSIDE COUNTY FLOOD CONTROL
AND
WATER CONSERVATION DISTRICT
**SLOPE OF
INTENSITY DURATION
CURVE**

PLATE

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)



PROJECT SITE
INTENSITY = 0.50

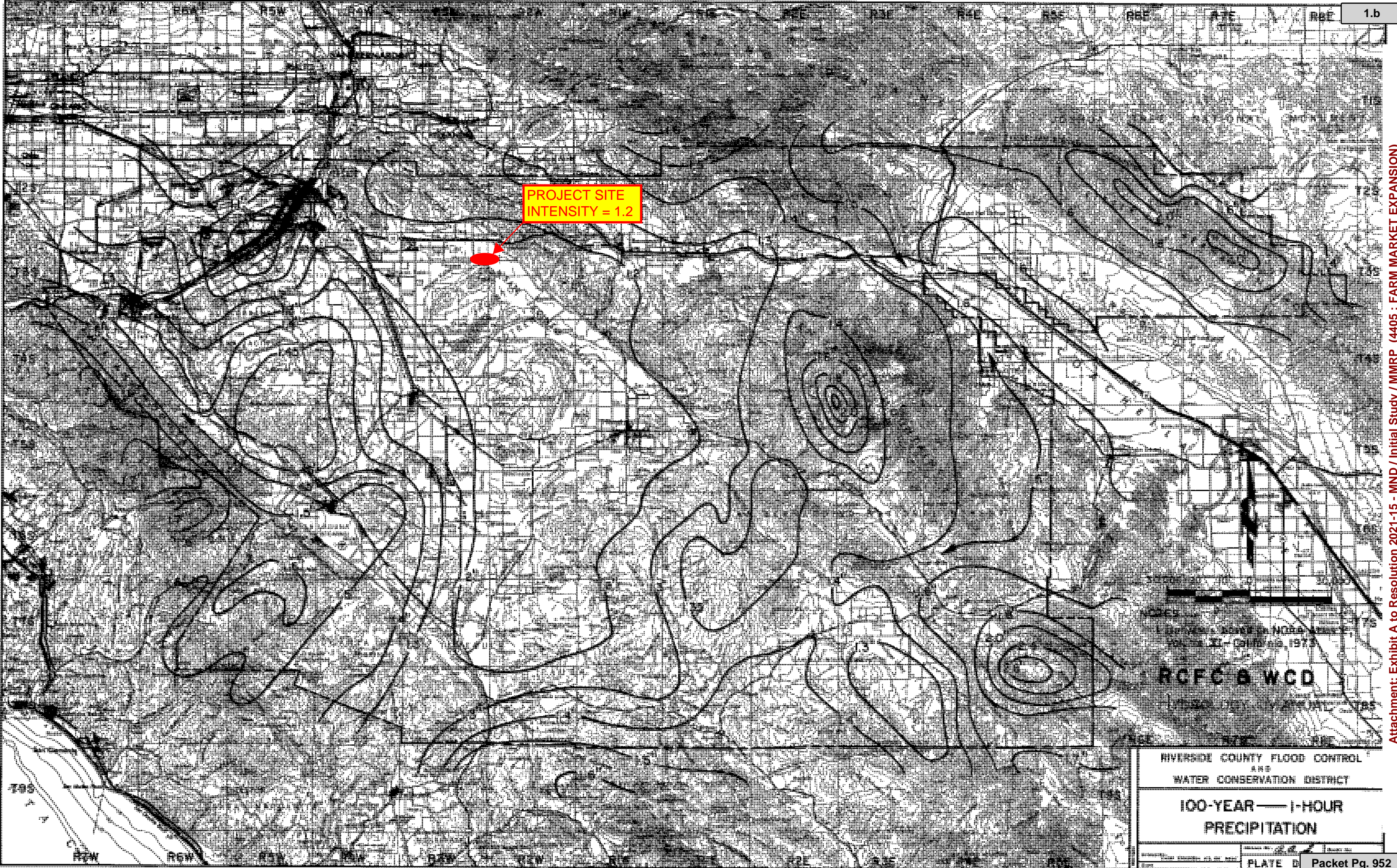
NOTES:
 Contours based on NOAA WATER
 Gauge at Corona, 1978

RCFC & WCD

RIVERSIDE COUNTY FLOOD CONTROL
 AND
 WATER CONSERVATION DISTRICT

2-YEAR — 1-HOUR
 PRECIPITATION

PLATE D



PROJECT SITE
INTENSITY = 1.2

RCFC & WCD

RIVERSIDE COUNTY FLOOD CONTROL
AND
WATER CONSERVATION DISTRICT

100-YEAR — 1-HOUR
PRECIPITATION

PROJECT SITE
INTENSITY = 0.8

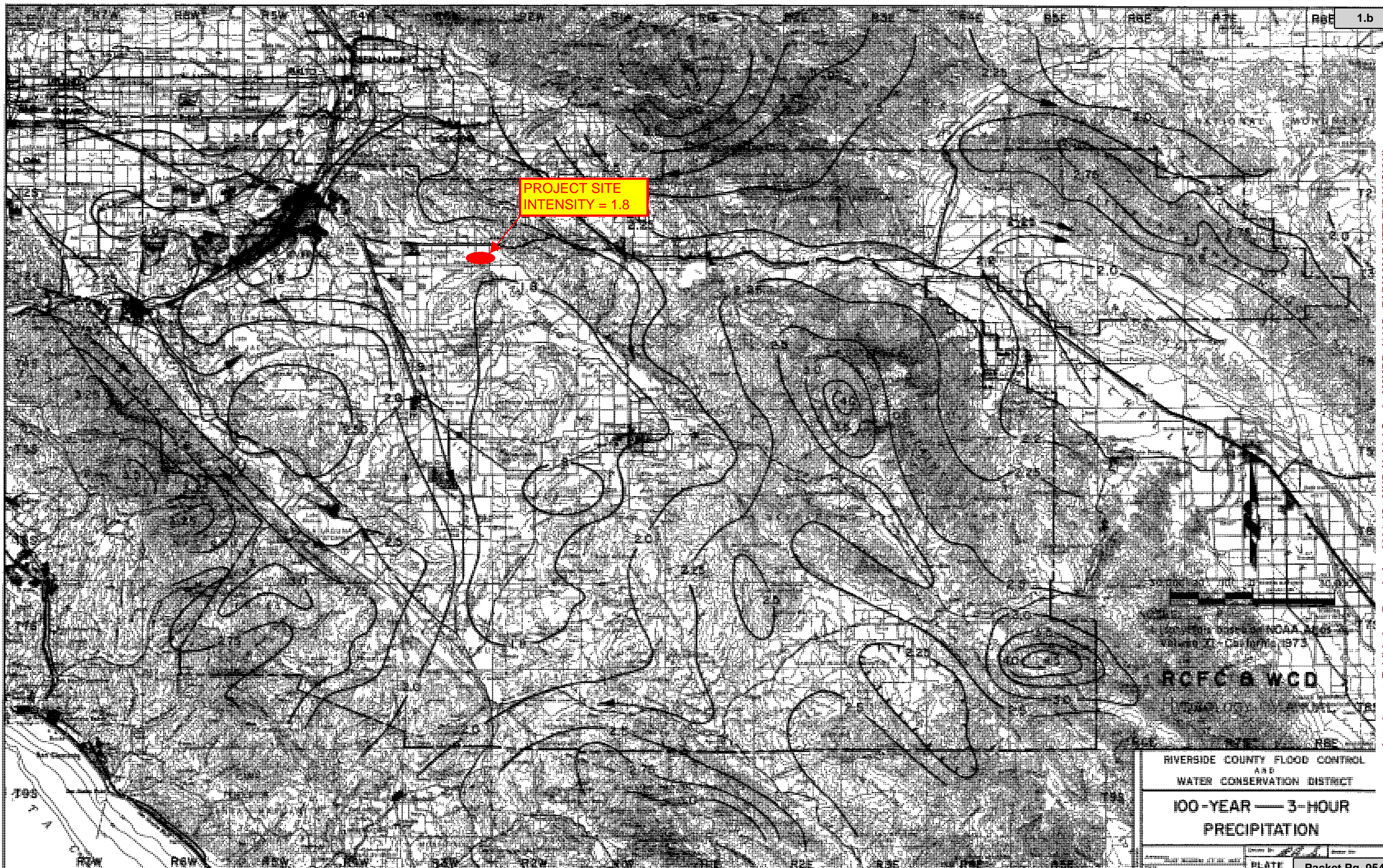
RCFC & WCD

RIVERSIDE COUNTY FLOOD CONTROL
AND
WATER CONSERVATION DISTRICT

2-YEAR — 3-HOUR
PRECIPITATION

PLATE

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

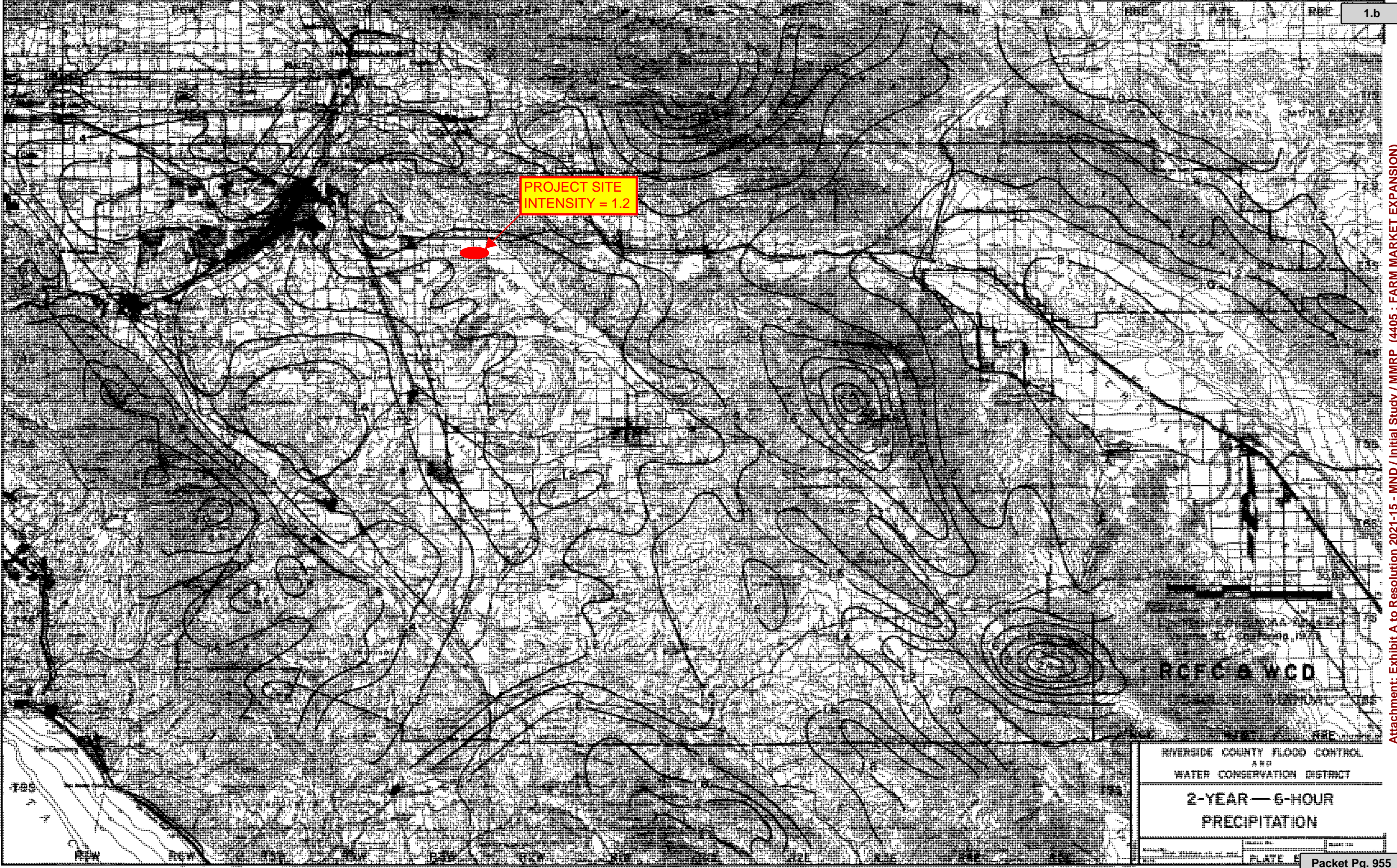


PROJECT SITE
INTENSITY = 1.8

RIVERSIDE COUNTY FLOOD CONTROL
AND
WATER CONSERVATION DISTRICT

100-YEAR — 3-HOUR
PRECIPITATION

PLATE



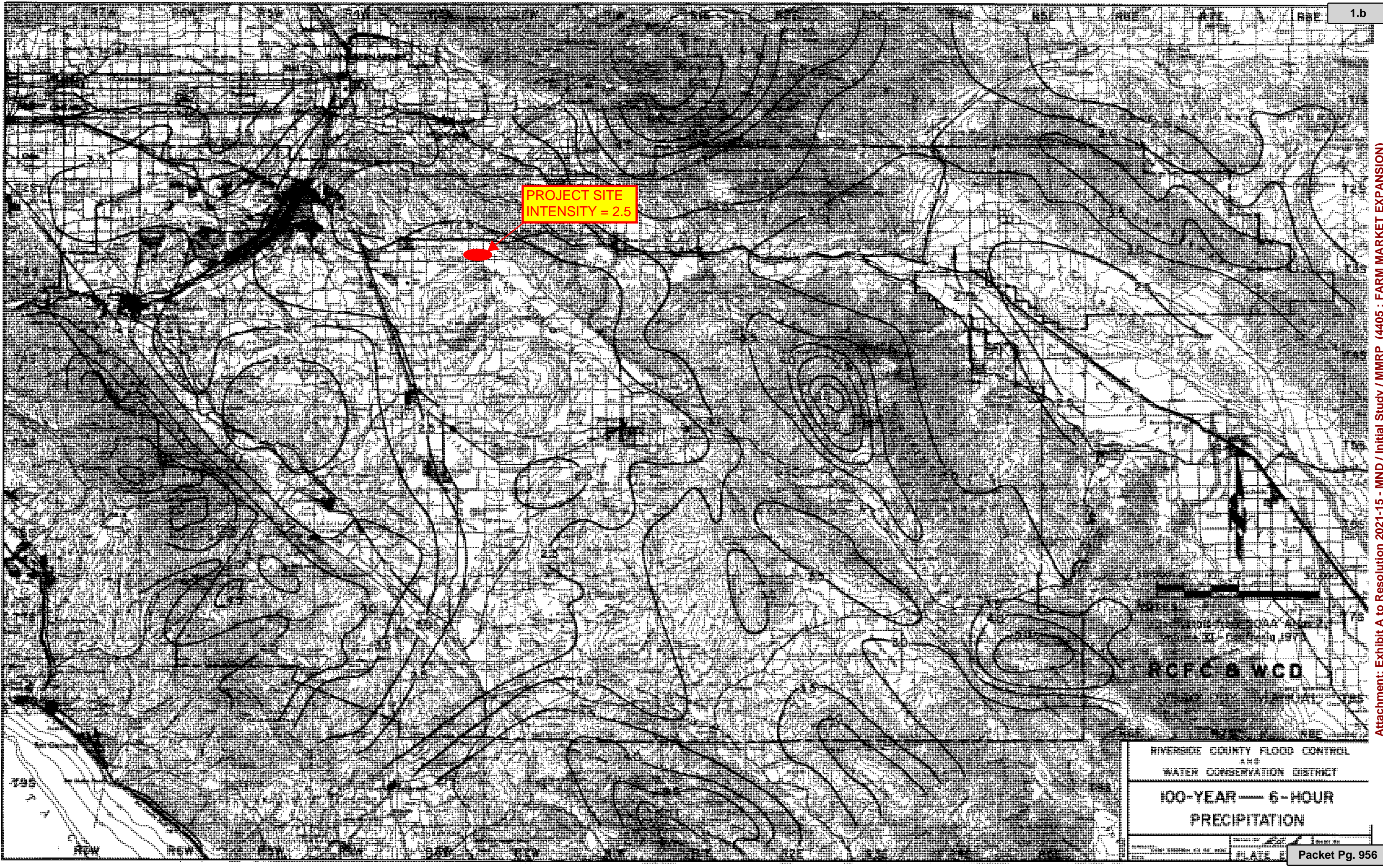
PROJECT SITE
INTENSITY = 1.2

RCFC & WCD

RIVERSIDE COUNTY FLOOD CONTROL
AND
WATER CONSERVATION DISTRICT

2-YEAR — 6-HOUR
PRECIPITATION

PLATE E



PROJECT SITE
INTENSITY = 2.5

RCFC & WCD

RIVERSIDE COUNTY FLOOD CONTROL
AND
WATER CONSERVATION DISTRICT

100-YEAR — 6-HOUR
PRECIPITATION

PROJECT SITE
INTENSITY = 1.8

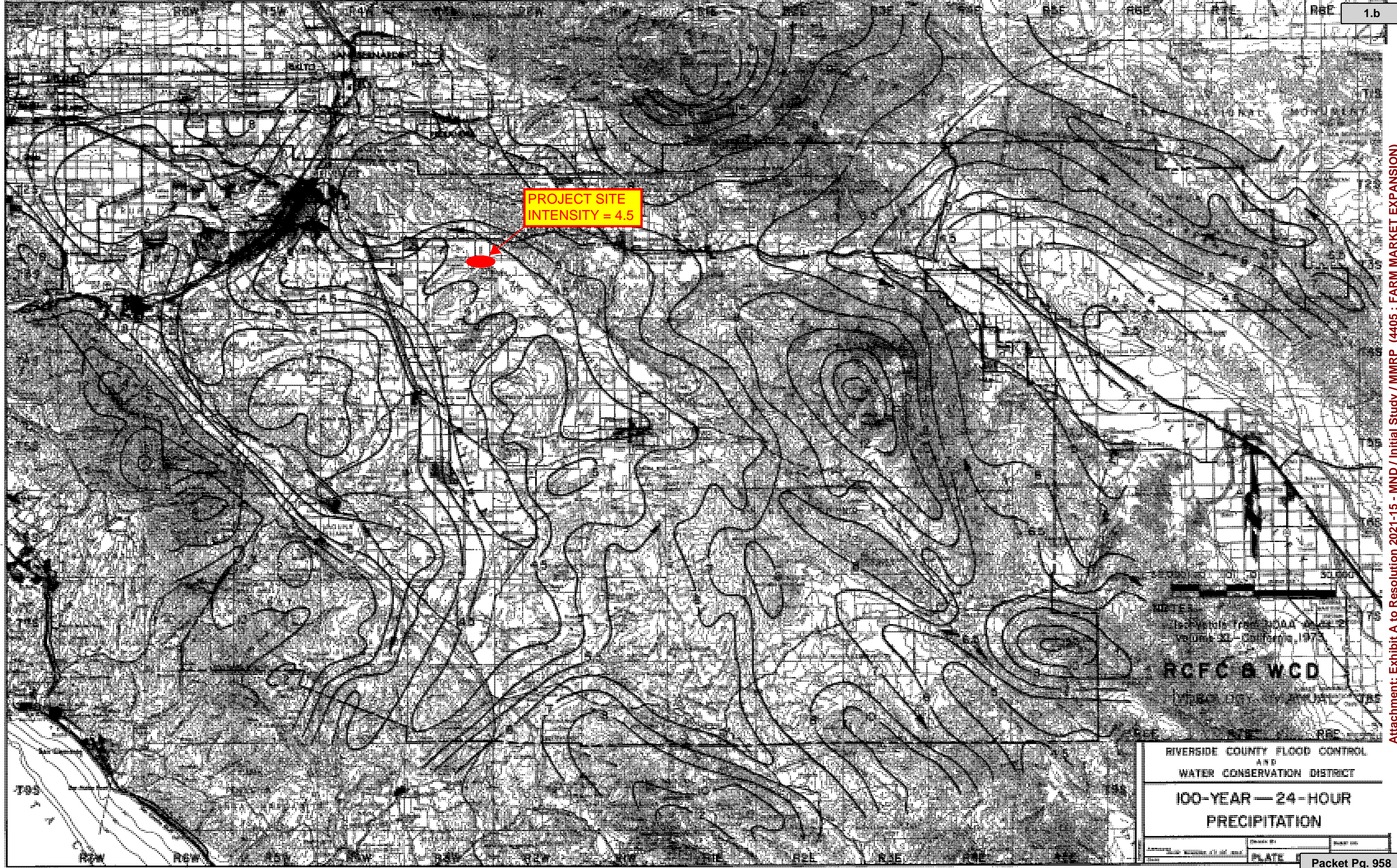
NOTES:
1. Intensity values are based on the
California Engineering Council, 1971,
Volume 2, California, 1971.

RCFC & WCD

RIVERSIDE COUNTY FLOOD CONTROL
AND
WATER CONSERVATION DISTRICT

2-YEAR — 24-HOUR
PRECIPITATION

PLATE



Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

SECTION 3 – Hydrology Calculations

- Rational Hydrology Analysis
- Unit-Hydrograph Analysis

Area 'A' – 10 Year Pre-Development Condition – Rational Method

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989 - 2014 Version 9.0
 Rational Hydrology Study Date: 07/23/20 File:EX10.out

 FARM MARKET EXPANSION
 EXISTING CONDITION - RATIONAL MEATHOD - 10 YEAR STORM
 WMB & ASSOCIATES, JULY 2020
 BY: BRIAN LOWELL, PE

***** Hydrology Study Control Information *****

English (in-lb) Units used in input data file

Program License Serial Number 6407

Rational Method Hydrology Program based on
 Riverside County Flood Control & Water Conservation District
 1978 hydrology manual

Storm event (year) = 10.00 Antecedent Moisture Condition = 2

2 year, 1 hour precipitation = 0.500(In.)
 100 year, 1 hour precipitation = 1.200(In.)

Storm event year = 10.0
 Calculated rainfall intensity data:
 1 hour intensity = 0.788(In/Hr)
 Slope of intensity duration curve = 0.5000

+++++
 Process from Point/Station 100.000 to Point/Station 101.000
 **** INITIAL AREA EVALUATION ****

 Initial area flow distance = 175.000(Ft.)
 Top (of initial area) elevation = 1600.900(Ft.)
 Bottom (of initial area) elevation = 1599.000(Ft.)
 Difference in elevation = 1.900(Ft.)
 Slope = 0.01086 s(percent)= 1.09
 $TC = k(0.300)*[(length^3)/(elevation\ change)]^{0.2}$
 Initial area time of concentration = 5.851 min.
 Rainfall intensity = 2.523(In/Hr) for a 10.0 year storm
 COMMERCIAL subarea type
 Runoff Coefficient = 0.874
 Decimal fraction soil group A = 0.000
 Decimal fraction soil group B = 1.000
 Decimal fraction soil group C = 0.000
 Decimal fraction soil group D = 0.000
 RI index for soil(AMC 2) = 56.00
 Pervious area fraction = 0.100; Impervious fraction = 0.900
 Initial subarea runoff = 1.742(CFS)
 Total initial stream area = 0.790(Ac.)
 Pervious area fraction = 0.100

+++++
 Process from Point/Station 101.000 to Point/Station 102.000
 **** NATURAL CHANNEL TIME + SUBAREA FLOW ADDITION ****

 Top of natural channel elevation = 1599.000(Ft.)
 End of natural channel elevation = 1593.000(Ft.)
 Length of natural channel = 180.000(Ft.)
 Estimated mean flow rate at midpoint of channel = 2.667(CFS)

Natural valley channel type used

L.A. County flood control district formula for channel velocity:
 $Velocity(ft/s) = (7 + 8(q(\text{English Units})^{.352}) (\text{slope}^{.5}))$
 Velocity using mean channel flow = 3.34 (Ft/s)

Correction to map slope used on extremely rugged channels with drops and waterfalls (Plate D-6.2)

Normal channel slope = 0.0333
 Corrected/adjusted channel slope = 0.0333
 Travel time = 0.90 min. TC = 6.75 min.

Adding area flow to channel
 UNDEVELOPED (poor cover) subarea
 Runoff Coefficient = 0.776
 Decimal fraction soil group A = 0.000
 Decimal fraction soil group B = 1.000
 Decimal fraction soil group C = 0.000
 Decimal fraction soil group D = 0.000
 RI index for soil(AMC 2) = 78.00
 Pervious area fraction = 1.000; Impervious fraction = 0.000
 Rainfall intensity = 2.350 (In/Hr) for a 10.0 year storm
 Subarea runoff = 1.531 (CFS) for 0.840 (Ac.)
 Total runoff = 3.273 (CFS) Total area = 1.630 (Ac.)
 End of computations, total study area = 1.63 (Ac.)
 The following figures may
 be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(A_p) = 0.564
 Area averaged RI index number = 67.3

- **Area 'A' – 100 Year Pre-Development Condition – Rational Method**

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989 - 2014 Version 9.0
Rational Hydrology Study Date: 07/23/20 File:EX100.out

FARM MARKET EXPANSION
EXISTING CONDITION - RATIONAL MEATHOD - 100 YEAR STORM
WMB & ASSOCIATES, JULY 2020
BY: BRIAN LOWELL, PE

***** Hydrology Study Control Information *****

English (in-lb) Units used in input data file

Program License Serial Number 6407

Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) = 100.00 Antecedent Moisture Condition = 3

2 year, 1 hour precipitation = 0.500(In.)
100 year, 1 hour precipitation = 1.200(In.)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity = 1.200(In/Hr)
Slope of intensity duration curve = 0.5000

Process from Point/Station 100.000 to Point/Station 101.000
**** INITIAL AREA EVALUATION ****

Initial area flow distance = 175.000(Ft.)
Top (of initial area) elevation = 1600.900(Ft.)
Bottom (of initial area) elevation = 1599.000(Ft.)
Difference in elevation = 1.900(Ft.)
Slope = 0.01086 s(percent)= 1.09
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 5.851 min.
Rainfall intensity = 3.843(In/Hr) for a 100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.891
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 3) = 74.80
Pervious area fraction = 0.100; Impervious fraction = 0.900
Initial subarea runoff = 2.704(CFS)
Total initial stream area = 0.790(Ac.)
Pervious area fraction = 0.100

Process from Point/Station 101.000 to Point/Station 102.000
**** NATURAL CHANNEL TIME + SUBAREA FLOW ADDITION ****

Top of natural channel elevation = 1599.000(Ft.)
End of natural channel elevation = 1593.000(Ft.)
Length of natural channel = 180.000(Ft.)
Estimated mean flow rate at midpoint of channel = 4.141(CFS)

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Natural valley channel type used
 L.A. County flood control district formula for channel velocity:
 $Velocity(ft/s) = (7 + 8(q(English\ Units)^{.352})(slope^{.5}))$
 Velocity using mean channel flow = 3.69(Ft/s)

Correction to map slope used on extremely rugged channels with drops and waterfalls (Plate D-6.2)

Normal channel slope = 0.0333
 Corrected/adjusted channel slope = 0.0333
 Travel time = 0.81 min. TC = 6.66 min.

Adding area flow to channel
 UNDEVELOPED (poor cover) subarea
 Runoff Coefficient = 0.864
 Decimal fraction soil group A = 0.000
 Decimal fraction soil group B = 1.000
 Decimal fraction soil group C = 0.000
 Decimal fraction soil group D = 0.000
 RI index for soil(AMC 3) = 89.80
 Pervious area fraction = 1.000; Impervious fraction = 0.000
 Rainfall intensity = 3.601(In/Hr) for a 100.0 year storm
 Subarea runoff = 2.612(CFS) for 0.840(Ac.)
 Total runoff = 5.316(CFS) Total area = 1.630(Ac.)
 End of computations, total study area = 1.63 (Ac.)
 The following figures may
 be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(A_p) = 0.564
 Area averaged RI index number = 67.3

- **Area 'A' – 10 Year Post-Development Condition – Rational Method**

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989 - 2014 Version 9.0
Rational Hydrology Study Date: 07/23/20 File:pr10.out

FARM MARKET EXPANSION
PROPOSED CONDITION - RATIONAL MEATHOD - 10 YEAR STORM
WMB & ASSOCIATES, JULY 2020
BY: BRIAN LOWELL, PE

***** Hydrology Study Control Information *****

English (in-lb) Units used in input data file

Program License Serial Number 6407

Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) = 10.00 Antecedent Moisture Condition = 2

2 year, 1 hour precipitation = 0.500(In.)
100 year, 1 hour precipitation = 1.200(In.)

Storm event year = 10.0
Calculated rainfall intensity data:
1 hour intensity = 0.788(In/Hr)
Slope of intensity duration curve = 0.5000

+++++
Process from Point/Station 100.000 to Point/Station 101.000
**** INITIAL AREA EVALUATION ****

Initial area flow distance = 121.000(Ft.)
Top (of initial area) elevation = 1599.400(Ft.)
Bottom (of initial area) elevation = 1597.800(Ft.)
Difference in elevation = 1.600(Ft.)
Slope = 0.01322 s(percent)= 1.32
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Warning: TC computed to be less than 5 min.; program is assuming the
time of concentration is 5 minutes.
Initial area time of concentration = 5.000 min.
Rainfall intensity = 2.730(In/Hr) for a 10.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.875
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2) = 56.00
Pervious area fraction = 0.100; Impervious fraction = 0.900
Initial subarea runoff = 0.573(CFS)
Total initial stream area = 0.240(Ac.)
Pervious area fraction = 0.100

+++++
Process from Point/Station 101.000 to Point/Station 102.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1594.900(Ft.)
Downstream point/station elevation = 1594.500(Ft.)
Pipe length = 44.00(Ft.) Manning's N = 0.013
No. of pipes = 1 Required pipe flow = 0.573(CFS)

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Nearest computed pipe diameter = 9.00(In.)
 Calculated individual pipe flow = 0.573(CFS)
 Normal flow depth in pipe = 3.75(In.)
 Flow top width inside pipe = 8.87(In.)
 Critical Depth = 4.11(In.)
 Pipe flow velocity = 3.29(Ft/s)
 Travel time through pipe = 0.22 min.
 Time of concentration (TC) = 5.22 min.

 Process from Point/Station 101.000 to Point/Station 102.000
 **** CONFLUENCE OF MINOR STREAMS ****

 Along Main Stream number: 1 in normal stream number 1
 Stream flow area = 0.240(Ac.)
 Runoff from this stream = 0.573(CFS)
 Time of concentration = 5.22 min.
 Rainfall intensity = 2.671(In/Hr)

 Process from Point/Station 103.000 to Point/Station 104.000
 **** INITIAL AREA EVALUATION ****

 Initial area flow distance = 60.000(Ft.)
 Top (of initial area) elevation = 1597.000(Ft.)
 Bottom (of initial area) elevation = 1596.500(Ft.)
 Difference in elevation = 0.500(Ft.)
 Slope = 0.00833 s(percent)= 0.83
 TC = k(0.300)*[(length^3)/(elevation change)]^0.2
 Warning: TC computed to be less than 5 min.; program is assuming the
 time of concentration is 5 minutes.
 Initial area time of concentration = 5.000 min.
 Rainfall intensity = 2.730(In/Hr) for a 10.0 year storm
 COMMERCIAL subarea type
 Runoff Coefficient = 0.875
 Decimal fraction soil group A = 0.000
 Decimal fraction soil group B = 1.000
 Decimal fraction soil group C = 0.000
 Decimal fraction soil group D = 0.000
 RI index for soil(AMC 2) = 56.00
 Pervious area fraction = 0.100; Impervious fraction = 0.900
 Initial subarea runoff = 0.239(CFS)
 Total initial stream area = 0.100(Ac.)
 Pervious area fraction = 0.100

 Process from Point/Station 104.000 to Point/Station 102.000
 **** PIPEFLOW TRAVEL TIME (Program estimated size) ****

 Upstream point/station elevation = 1595.000(Ft.)
 Downstream point/station elevation = 1594.500(Ft.)
 Pipe length = 30.00(Ft.) Manning's N = 0.013
 No. of pipes = 1 Required pipe flow = 0.239(CFS)
 Nearest computed pipe diameter = 6.00(In.)
 Calculated individual pipe flow = 0.239(CFS)
 Normal flow depth in pipe = 2.37(In.)
 Flow top width inside pipe = 5.87(In.)
 Critical Depth = 2.95(In.)
 Pipe flow velocity = 3.31(Ft/s)
 Travel time through pipe = 0.15 min.
 Time of concentration (TC) = 5.15 min.

 Process from Point/Station 104.000 to Point/Station 102.000
 **** CONFLUENCE OF MINOR STREAMS ****

 Along Main Stream number: 1 in normal stream number 2
 Stream flow area = 0.100(Ac.)
 Runoff from this stream = 0.239(CFS)
 Time of concentration = 5.15 min.

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Rainfall intensity = 2.689(In/Hr)
 Summary of stream data:

Stream No.	Flow rate (CFS)	TC (min)	Rainfall Intensity (In/Hr)
------------	-----------------	----------	----------------------------

1	0.573	5.22	2.671
2	0.239	5.15	2.689

Largest stream flow has longer time of concentration

Qp = 0.573 + sum of
 Qb Ia/Ib
 0.239 * 0.993 = 0.237
 Qp = 0.810

Total of 2 streams to confluence:
 Flow rates before confluence point:
 0.573 0.239

Area of streams before confluence:
 0.240 0.100

Results of confluence:
 Total flow rate = 0.810(CFS)
 Time of concentration = 5.223 min.
 Effective stream area after confluence = 0.340(Ac.)

 Process from Point/Station 102.000 to Point/Station 105.000
 **** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1594.500(Ft.)
 Downstream point/station elevation = 1593.600(Ft.)
 Pipe length = 113.00(Ft.) Manning's N = 0.013
 No. of pipes = 1 Required pipe flow = 0.810(CFS)
 Nearest computed pipe diameter = 9.00(In.)
 Calculated individual pipe flow = 0.810(CFS)
 Normal flow depth in pipe = 4.76(In.)
 Flow top width inside pipe = 8.99(In.)
 Critical Depth = 4.93(In.)
 Pipe flow velocity = 3.42(Ft/s)
 Travel time through pipe = 0.55 min.
 Time of concentration (TC) = 5.77 min.

 Process from Point/Station 102.000 to Point/Station 105.000
 **** CONFLUENCE OF MAIN STREAMS ****

The following data inside Main Stream is listed:

In Main Stream number: 1
 Stream flow area = 0.340(Ac.)
 Runoff from this stream = 0.810(CFS)
 Time of concentration = 5.77 min.
 Rainfall intensity = 2.540(In/Hr)
 Program is now starting with Main Stream No. 2

 Process from Point/Station 100.000 to Point/Station 106.000
 **** INITIAL AREA EVALUATION ****

Initial area flow distance = 187.000(Ft.)
 Top (of initial area) elevation = 1599.400(Ft.)
 Bottom (of initial area) elevation = 1597.100(Ft.)
 Difference in elevation = 2.300(Ft.)
 Slope = 0.01230 s(percent)= 1.23
 TC = k(0.300)*[(length^3)/(elevation change)]^0.2
 Initial area time of concentration = 5.860 min.
 Rainfall intensity = 2.521(In/Hr) for a 10.0 year storm
 COMMERCIAL subarea type
 Runoff Coefficient = 0.874
 Decimal fraction soil group A = 0.000
 Decimal fraction soil group B = 1.000
 Decimal fraction soil group C = 0.000

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Decimal fraction soil group D = 0.000
 RI index for soil(AMC 2) = 56.00
 Pervious area fraction = 0.100; Impervious fraction = 0.900
 Initial subarea runoff = 0.969(CFS)
 Total initial stream area = 0.440(Ac.)
 Pervious area fraction = 0.100

 Process from Point/Station 106.000 to Point/Station 107.000
 **** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1595.000(Ft.)
 Downstream point/station elevation = 1594.300(Ft.)
 Pipe length = 72.00(Ft.) Manning's N = 0.013
 No. of pipes = 1 Required pipe flow = 0.969(CFS)
 Nearest computed pipe diameter = 9.00(In.)
 Calculated individual pipe flow = 0.969(CFS)
 Normal flow depth in pipe = 4.99(In.)
 Flow top width inside pipe = 8.95(In.)
 Critical Depth = 5.42(In.)
 Pipe flow velocity = 3.85(Ft/s)
 Travel time through pipe = 0.31 min.
 Time of concentration (TC) = 6.17 min.

 Process from Point/Station 106.000 to Point/Station 107.000
 **** CONFLUENCE OF MINOR STREAMS ****

Along Main Stream number: 2 in normal stream number 1
 Stream flow area = 0.440(Ac.)
 Runoff from this stream = 0.969(CFS)
 Time of concentration = 6.17 min.
 Rainfall intensity = 2.457(In/Hr)

 Process from Point/Station 100.000 to Point/Station 108.000
 **** INITIAL AREA EVALUATION ****

Initial area flow distance = 97.000(Ft.)
 Top (of initial area) elevation = 1599.400(Ft.)
 Bottom (of initial area) elevation = 1596.400(Ft.)
 Difference in elevation = 3.000(Ft.)
 Slope = 0.03093 s(percent) = 3.09
 $TC = k(0.300) * [(length^3)/(elevation\ change)]^{0.2}$
 Warning: TC computed to be less than 5 min.; program is assuming the
 time of concentration is 5 minutes.
 Initial area time of concentration = 5.000 min.
 Rainfall intensity = 2.730(In/Hr) for a 10.0 year storm
 COMMERCIAL subarea type
 Runoff Coefficient = 0.875
 Decimal fraction soil group A = 0.000
 Decimal fraction soil group B = 1.000
 Decimal fraction soil group C = 0.000
 Decimal fraction soil group D = 0.000
 RI index for soil(AMC 2) = 56.00
 Pervious area fraction = 0.100; Impervious fraction = 0.900
 Initial subarea runoff = 0.478(CFS)
 Total initial stream area = 0.200(Ac.)
 Pervious area fraction = 0.100

 Process from Point/Station 108.000 to Point/Station 107.000
 **** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1594.700(Ft.)
 Downstream point/station elevation = 1594.300(Ft.)
 Pipe length = 19.00(Ft.) Manning's N = 0.013
 No. of pipes = 1 Required pipe flow = 0.478(CFS)
 Nearest computed pipe diameter = 6.00(In.)
 Calculated individual pipe flow = 0.478(CFS)

Normal flow depth in pipe = 3.30(In.)
 Flow top width inside pipe = 5.97(In.)
 Critical Depth = 4.23(In.)
 Pipe flow velocity = 4.31(Ft/s)
 Travel time through pipe = 0.07 min.
 Time of concentration (TC) = 5.07 min.

 Process from Point/Station 108.000 to Point/Station 107.000
 **** CONFLUENCE OF MINOR STREAMS ****

Along Main Stream number: 2 in normal stream number 2
 Stream flow area = 0.200(Ac.)
 Runoff from this stream = 0.478(CFS)
 Time of concentration = 5.07 min.
 Rainfall intensity = 2.710(In/Hr)
 Summary of stream data:

Stream No.	Flow rate (CFS)	TC (min)	Rainfall Intensity (In/Hr)
------------	-----------------	----------	----------------------------

1	0.969	6.17	2.457
2	0.478	5.07	2.710

Largest stream flow has longer time of concentration

Qp = 0.969 + sum of
 Qb Ia/Ib
 0.478 * 0.907 = 0.433
 Qp = 1.402

Total of 2 streams to confluence:

Flow rates before confluence point:
 0.969 0.478

Area of streams before confluence:
 0.440 0.200

Results of confluence:

Total flow rate = 1.402(CFS)
 Time of concentration = 6.171 min.
 Effective stream area after confluence = 0.640(Ac.)

 Process from Point/Station 107.000 to Point/Station 105.000
 **** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1594.300(Ft.)
 Downstream point/station elevation = 1593.600(Ft.)
 Pipe length = 145.00(Ft.) Manning's N = 0.013
 No. of pipes = 1 Required pipe flow = 1.402(CFS)
 Nearest computed pipe diameter = 12.00(In.)
 Calculated individual pipe flow = 1.402(CFS)
 Normal flow depth in pipe = 6.47(In.)
 Flow top width inside pipe = 11.96(In.)
 Critical Depth = 6.01(In.)
 Pipe flow velocity = 3.25(Ft/s)
 Travel time through pipe = 0.74 min.
 Time of concentration (TC) = 6.91 min.

 Process from Point/Station 107.000 to Point/Station 105.000
 **** CONFLUENCE OF MAIN STREAMS ****

The following data inside Main Stream is listed:

In Main Stream number: 2
 Stream flow area = 0.640(Ac.)
 Runoff from this stream = 1.402(CFS)
 Time of concentration = 6.91 min.
 Rainfall intensity = 2.321(In/Hr)
 Summary of stream data:

Stream No.	Flow rate (CFS)	TC (min)	Rainfall Intensity (In/Hr)
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1 0.810 5.77 2.540
 2 1.402 6.91 2.321
 Largest stream flow has longer time of concentration
 $Q_p = 1.402 + \text{sum of}$
 $\quad \quad \quad Q_b \quad \quad \quad I_a/I_b$
 $\quad \quad \quad 0.810 * \quad 0.914 = \quad 0.741$
 $Q_p = \quad 2.143$

Total of 2 main streams to confluence:
 Flow rates before confluence point:
 0.810 1.402
 Area of streams before confluence:
 0.340 0.640

Results of confluence:
 Total flow rate = 2.143 (CFS)
 Time of concentration = 6.915 min.
 Effective stream area after confluence = 0.980 (Ac.)

+++++
 Process from Point/Station 105.000 to Point/Station 109.000
 **** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1593.600 (Ft.)
 Downstream point/station elevation = 1593.000 (Ft.)
 Pipe length = 81.00 (Ft.) Manning's N = 0.013
 No. of pipes = 1 Required pipe flow = 2.143 (CFS)
 Nearest computed pipe diameter = 12.00 (In.)
 Calculated individual pipe flow = 2.143 (CFS)
 Normal flow depth in pipe = 7.39 (In.)
 Flow top width inside pipe = 11.67 (In.)
 Critical Depth = 7.51 (In.)
 Pipe flow velocity = 4.22 (Ft/s)
 Travel time through pipe = 0.32 min.
 Time of concentration (TC) = 7.23 min.

+++++
 Process from Point/Station 105.000 to Point/Station 109.000
 **** CONFLUENCE OF MINOR STREAMS ****

Along Main Stream number: 1 in normal stream number 1
 Stream flow area = 0.980 (Ac.)
 Runoff from this stream = 2.143 (CFS)
 Time of concentration = 7.23 min.
 Rainfall intensity = 2.269 (In/Hr)

+++++
 Process from Point/Station 110.000 to Point/Station 109.000
 **** INITIAL AREA EVALUATION ****

Initial area flow distance = 268.000 (Ft.)
 Top (of initial area) elevation = 1600.500 (Ft.)
 Bottom (of initial area) elevation = 1596.300 (Ft.)
 Difference in elevation = 4.200 (Ft.)
 Slope = 0.01567 s(percent) = 1.57
 $TC = k(0.300) * [(length^3) / (elevation change)]^{0.2}$
 Initial area time of concentration = 6.447 min.
 Rainfall intensity = 2.404 (In/Hr) for a 10.0 year storm
 COMMERCIAL subarea type
 Runoff Coefficient = 0.873
 Decimal fraction soil group A = 0.000
 Decimal fraction soil group B = 1.000
 Decimal fraction soil group C = 0.000
 Decimal fraction soil group D = 0.000
 RI index for soil (AMC 2) = 56.00
 Pervious area fraction = 0.100; Impervious fraction = 0.900
 Initial subarea runoff = 1.468 (CFS)
 Total initial stream area = 0.700 (Ac.)

Pervious area fraction = 0.100

+++++
 Process from Point/Station 110.000 to Point/Station 109.000
 **** CONFLUENCE OF MINOR STREAMS ****

Along Main Stream number: 1 in normal stream number 2
 Stream flow area = 0.700 (Ac.)
 Runoff from this stream = 1.468 (CFS)
 Time of concentration = 6.45 min.
 Rainfall intensity = 2.404 (In/Hr)
 Summary of stream data:

Stream No.	Flow rate (CFS)	TC (min)	Rainfall Intensity (In/Hr)
------------	-----------------	----------	----------------------------

1	2.143	7.23	2.269
2	1.468	6.45	2.404

Largest stream flow has longer time of concentration

Qp = 2.143 + sum of
 Qb Ia/Ib
 1.468 * 0.944 = 1.386
 Qp = 3.529

Total of 2 streams to confluence:
 Flow rates before confluence point:
 2.143 1.468

Area of streams before confluence:
 0.980 0.700

Results of confluence:

Total flow rate = 3.529 (CFS)
 Time of concentration = 7.235 min.
 Effective stream area after confluence = 1.680 (Ac.)
 End of computations, total study area = 1.68 (Ac.)

The following figures may
 be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction (Ap) = 0.100
 Area averaged RI index number = 56.0

- **Area 'A' – 100 Year Post-Development Condition – Rational Method**

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989 - 2014 Version 9.0
Rational Hydrology Study Date: 07/23/20 File:pr100.out

FARM MARKET EXPANSION
PROPOSED CONDITION - RATIONAL MEATHOD - 100 YEAR STORM
WMB & ASSOCIATES, JULY 2020
BY: BRIAN LOWELL, PE

***** Hydrology Study Control Information *****

English (in-lb) Units used in input data file

Program License Serial Number 6407

Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) = 100.00 Antecedent Moisture Condition = 3

2 year, 1 hour precipitation = 0.500(In.)
100 year, 1 hour precipitation = 1.200(In.)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity = 1.200(In/Hr)
Slope of intensity duration curve = 0.5000

+++++
Process from Point/Station 100.000 to Point/Station 101.000
**** INITIAL AREA EVALUATION ****

Initial area flow distance = 121.000(Ft.)
Top (of initial area) elevation = 1599.400(Ft.)
Bottom (of initial area) elevation = 1597.800(Ft.)
Difference in elevation = 1.600(Ft.)
Slope = 0.01322 s(percent)= 1.32
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Warning: TC computed to be less than 5 min.; program is assuming the
time of concentration is 5 minutes.
Initial area time of concentration = 5.000 min.
Rainfall intensity = 4.157(In/Hr) for a 100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.891
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 3) = 74.80
Pervious area fraction = 0.100; Impervious fraction = 0.900
Initial subarea runoff = 0.889(CFS)
Total initial stream area = 0.240(Ac.)
Pervious area fraction = 0.100

+++++
Process from Point/Station 101.000 to Point/Station 102.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1594.900(Ft.)
Downstream point/station elevation = 1594.500(Ft.)
Pipe length = 44.00(Ft.) Manning's N = 0.013
No. of pipes = 1 Required pipe flow = 0.889(CFS)

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Nearest computed pipe diameter = 9.00(In.)
 Calculated individual pipe flow = 0.889(CFS)
 Normal flow depth in pipe = 4.83(In.)
 Flow top width inside pipe = 8.98(In.)
 Critical Depth = 5.18(In.)
 Pipe flow velocity = 3.68(Ft/s)
 Travel time through pipe = 0.20 min.
 Time of concentration (TC) = 5.20 min.

 Process from Point/Station 101.000 to Point/Station 102.000
 **** CONFLUENCE OF MINOR STREAMS ****

 Along Main Stream number: 1 in normal stream number 1
 Stream flow area = 0.240(Ac.)
 Runoff from this stream = 0.889(CFS)
 Time of concentration = 5.20 min.
 Rainfall intensity = 4.076(In/Hr)

 Process from Point/Station 103.000 to Point/Station 104.000
 **** INITIAL AREA EVALUATION ****

 Initial area flow distance = 60.000(Ft.)
 Top (of initial area) elevation = 1597.000(Ft.)
 Bottom (of initial area) elevation = 1596.500(Ft.)
 Difference in elevation = 0.500(Ft.)
 Slope = 0.00833 s(percent)= 0.83
 $TC = k(0.300)*[(length^3)/(elevation\ change)]^{0.2}$
 Warning: TC computed to be less than 5 min.; program is assuming the
 time of concentration is 5 minutes.
 Initial area time of concentration = 5.000 min.
 Rainfall intensity = 4.157(In/Hr) for a 100.0 year storm
 COMMERCIAL subarea type
 Runoff Coefficient = 0.891
 Decimal fraction soil group A = 0.000
 Decimal fraction soil group B = 1.000
 Decimal fraction soil group C = 0.000
 Decimal fraction soil group D = 0.000
 RI index for soil(AMC 3) = 74.80
 Pervious area fraction = 0.100; Impervious fraction = 0.900
 Initial subarea runoff = 0.370(CFS)
 Total initial stream area = 0.100(Ac.)
 Pervious area fraction = 0.100

 Process from Point/Station 104.000 to Point/Station 102.000
 **** PIPEFLOW TRAVEL TIME (Program estimated size) ****

 Upstream point/station elevation = 1595.000(Ft.)
 Downstream point/station elevation = 1594.500(Ft.)
 Pipe length = 30.00(Ft.) Manning's N = 0.013
 No. of pipes = 1 Required pipe flow = 0.370(CFS)
 Nearest computed pipe diameter = 6.00(In.)
 Calculated individual pipe flow = 0.370(CFS)
 Normal flow depth in pipe = 3.04(In.)
 Flow top width inside pipe = 6.00(In.)
 Critical Depth = 3.71(In.)
 Pipe flow velocity = 3.71(Ft/s)
 Travel time through pipe = 0.13 min.
 Time of concentration (TC) = 5.13 min.

 Process from Point/Station 104.000 to Point/Station 102.000
 **** CONFLUENCE OF MINOR STREAMS ****

 Along Main Stream number: 1 in normal stream number 2
 Stream flow area = 0.100(Ac.)
 Runoff from this stream = 0.370(CFS)
 Time of concentration = 5.13 min.

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Rainfall intensity = 4.102(In/Hr)
 Summary of stream data:

Stream No.	Flow rate (CFS)	TC (min)	Rainfall Intensity (In/Hr)
------------	-----------------	----------	----------------------------

1	0.889	5.20	4.076
2	0.370	5.13	4.102

Largest stream flow has longer time of concentration

Qp = 0.889 + sum of
 Qb Ia/Ib
 0.370 * 0.994 = 0.368
 Qp = 1.257

Total of 2 streams to confluence:
 Flow rates before confluence point:
 0.889 0.370

Area of streams before confluence:
 0.240 0.100

Results of confluence:
 Total flow rate = 1.257(CFS)
 Time of concentration = 5.199 min.
 Effective stream area after confluence = 0.340(Ac.)

 Process from Point/Station 102.000 to Point/Station 105.000
 **** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1594.500(Ft.)
 Downstream point/station elevation = 1593.600(Ft.)
 Pipe length = 113.00(Ft.) Manning's N = 0.013
 No. of pipes = 1 Required pipe flow = 1.257(CFS)
 Nearest computed pipe diameter = 9.00(In.)
 Calculated individual pipe flow = 1.257(CFS)
 Normal flow depth in pipe = 6.39(In.)
 Flow top width inside pipe = 8.17(In.)
 Critical Depth = 6.19(In.)
 Pipe flow velocity = 3.75(Ft/s)
 Travel time through pipe = 0.50 min.
 Time of concentration (TC) = 5.70 min.

 Process from Point/Station 102.000 to Point/Station 105.000
 **** CONFLUENCE OF MAIN STREAMS ****

The following data inside Main Stream is listed:

In Main Stream number: 1
 Stream flow area = 0.340(Ac.)
 Runoff from this stream = 1.257(CFS)
 Time of concentration = 5.70 min.
 Rainfall intensity = 3.893(In/Hr)
 Program is now starting with Main Stream No. 2

 Process from Point/Station 100.000 to Point/Station 106.000
 **** INITIAL AREA EVALUATION ****

Initial area flow distance = 187.000(Ft.)
 Top (of initial area) elevation = 1599.400(Ft.)
 Bottom (of initial area) elevation = 1597.100(Ft.)
 Difference in elevation = 2.300(Ft.)
 Slope = 0.01230 s(percent)= 1.23
 TC = k(0.300)*[(length^3)/(elevation change)]^0.2
 Initial area time of concentration = 5.860 min.
 Rainfall intensity = 3.840(In/Hr) for a 100.0 year storm
 COMMERCIAL subarea type
 Runoff Coefficient = 0.891
 Decimal fraction soil group A = 0.000
 Decimal fraction soil group B = 1.000
 Decimal fraction soil group C = 0.000

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Decimal fraction soil group D = 0.000
 RI index for soil(AMC 3) = 74.80
 Pervious area fraction = 0.100; Impervious fraction = 0.900
 Initial subarea runoff = 1.505(CFS)
 Total initial stream area = 0.440(Ac.)
 Pervious area fraction = 0.100

 Process from Point/Station 106.000 to Point/Station 107.000
 **** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1595.000(Ft.)
 Downstream point/station elevation = 1594.300(Ft.)
 Pipe length = 72.00(Ft.) Manning's N = 0.013
 No. of pipes = 1 Required pipe flow = 1.505(CFS)
 Nearest computed pipe diameter = 9.00(In.)
 Calculated individual pipe flow = 1.505(CFS)
 Normal flow depth in pipe = 6.82(In.)
 Flow top width inside pipe = 7.71(In.)
 Critical Depth = 6.78(In.)
 Pipe flow velocity = 4.19(Ft/s)
 Travel time through pipe = 0.29 min.
 Time of concentration (TC) = 6.15 min.

 Process from Point/Station 106.000 to Point/Station 107.000
 **** CONFLUENCE OF MINOR STREAMS ****

Along Main Stream number: 2 in normal stream number 1
 Stream flow area = 0.440(Ac.)
 Runoff from this stream = 1.505(CFS)
 Time of concentration = 6.15 min.
 Rainfall intensity = 3.749(In/Hr)

 Process from Point/Station 100.000 to Point/Station 108.000
 **** INITIAL AREA EVALUATION ****

Initial area flow distance = 97.000(Ft.)
 Top (of initial area) elevation = 1599.400(Ft.)
 Bottom (of initial area) elevation = 1596.400(Ft.)
 Difference in elevation = 3.000(Ft.)
 Slope = 0.03093 s(percent)= 3.09
 $TC = k(0.300)*[(length^3)/(elevation\ change)]^{0.2}$
 Warning: TC computed to be less than 5 min.; program is assuming the
 time of concentration is 5 minutes.
 Initial area time of concentration = 5.000 min.
 Rainfall intensity = 4.157(In/Hr) for a 100.0 year storm
 COMMERCIAL subarea type
 Runoff Coefficient = 0.891
 Decimal fraction soil group A = 0.000
 Decimal fraction soil group B = 1.000
 Decimal fraction soil group C = 0.000
 Decimal fraction soil group D = 0.000
 RI index for soil(AMC 3) = 74.80
 Pervious area fraction = 0.100; Impervious fraction = 0.900
 Initial subarea runoff = 0.741(CFS)
 Total initial stream area = 0.200(Ac.)
 Pervious area fraction = 0.100

 Process from Point/Station 108.000 to Point/Station 107.000
 **** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1594.700(Ft.)
 Downstream point/station elevation = 1594.300(Ft.)
 Pipe length = 19.00(Ft.) Manning's N = 0.013
 No. of pipes = 1 Required pipe flow = 0.741(CFS)
 Nearest computed pipe diameter = 6.00(In.)
 Calculated individual pipe flow = 0.741(CFS)

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Normal flow depth in pipe = 4.49(In.)
 Flow top width inside pipe = 5.21(In.)
 Critical Depth = 5.18(In.)
 Pipe flow velocity = 4.70(Ft/s)
 Travel time through pipe = 0.07 min.
 Time of concentration (TC) = 5.07 min.

 Process from Point/Station 108.000 to Point/Station 107.000
 **** CONFLUENCE OF MINOR STREAMS ****

Along Main Stream number: 2 in normal stream number 2
 Stream flow area = 0.200(Ac.)
 Runoff from this stream = 0.741(CFS)
 Time of concentration = 5.07 min.
 Rainfall intensity = 4.129(In/Hr)
 Summary of stream data:

Stream No.	Flow rate (CFS)	TC (min)	Rainfall Intensity (In/Hr)
------------	-----------------	----------	----------------------------

1	1.505	6.15	3.749
2	0.741	5.07	4.129

Largest stream flow has longer time of concentration

Qp = 1.505 + sum of
 Qb Ia/Ib
 0.741 * 0.908 = 0.673
 Qp = 2.177

Total of 2 streams to confluence:
 Flow rates before confluence point:
 1.505 0.741
 Area of streams before confluence:
 0.440 0.200
 Results of confluence:
 Total flow rate = 2.177(CFS)
 Time of concentration = 6.146 min.
 Effective stream area after confluence = 0.640(Ac.)

 Process from Point/Station 107.000 to Point/Station 105.000
 **** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1594.300(Ft.)
 Downstream point/station elevation = 1593.600(Ft.)
 Pipe length = 145.00(Ft.) Manning's N = 0.013
 No. of pipes = 1 Required pipe flow = 2.177(CFS)
 Nearest computed pipe diameter = 12.00(In.)
 Calculated individual pipe flow = 2.177(CFS)
 Normal flow depth in pipe = 8.73(In.)
 Flow top width inside pipe = 10.69(In.)
 Critical Depth = 7.57(In.)
 Pipe flow velocity = 3.56(Ft/s)
 Travel time through pipe = 0.68 min.
 Time of concentration (TC) = 6.83 min.

 Process from Point/Station 107.000 to Point/Station 105.000
 **** CONFLUENCE OF MAIN STREAMS ****

The following data inside Main Stream is listed:

In Main Stream number: 2
 Stream flow area = 0.640(Ac.)
 Runoff from this stream = 2.177(CFS)
 Time of concentration = 6.83 min.
 Rainfall intensity = 3.558(In/Hr)
 Summary of stream data:

Stream No.	Flow rate (CFS)	TC (min)	Rainfall Intensity (In/Hr)
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Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

1 1.257 5.70 3.893
 2 2.177 6.83 3.558
 Largest stream flow has longer time of concentration
 $Q_p = 2.177 + \text{sum of}$
 $Q_b \quad I_a/I_b$
 1.257 * 0.914 = 1.149
 $Q_p = 3.327$

Total of 2 main streams to confluence:
 Flow rates before confluence point:
 1.257 2.177
 Area of streams before confluence:
 0.340 0.640

Results of confluence:
 Total flow rate = 3.327 (CFS)
 Time of concentration = 6.826 min.
 Effective stream area after confluence = 0.980 (Ac.)

+++++
 Process from Point/Station 105.000 to Point/Station 109.000
 **** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1593.600 (Ft.)
 Downstream point/station elevation = 1593.000 (Ft.)
 Pipe length = 81.00 (Ft.) Manning's N = 0.013
 No. of pipes = 1 Required pipe flow = 3.327 (CFS)
 Nearest computed pipe diameter = 15.00 (In.)
 Calculated individual pipe flow = 3.327 (CFS)
 Normal flow depth in pipe = 8.36 (In.)
 Flow top width inside pipe = 14.90 (In.)
 Critical Depth = 8.82 (In.)
 Pipe flow velocity = 4.73 (Ft/s)
 Travel time through pipe = 0.29 min.
 Time of concentration (TC) = 7.11 min.

+++++
 Process from Point/Station 105.000 to Point/Station 109.000
 **** CONFLUENCE OF MINOR STREAMS ****

Along Main Stream number: 1 in normal stream number 1
 Stream flow area = 0.980 (Ac.)
 Runoff from this stream = 3.327 (CFS)
 Time of concentration = 7.11 min.
 Rainfall intensity = 3.486 (In/Hr)

+++++
 Process from Point/Station 110.000 to Point/Station 109.000
 **** INITIAL AREA EVALUATION ****

Initial area flow distance = 268.000 (Ft.)
 Top (of initial area) elevation = 1600.500 (Ft.)
 Bottom (of initial area) elevation = 1596.300 (Ft.)
 Difference in elevation = 4.200 (Ft.)
 Slope = 0.01567 s(percent) = 1.57
 $TC = k(0.300) * [(length^3) / (elevation change)]^{0.2}$
 Initial area time of concentration = 6.447 min.
 Rainfall intensity = 3.661 (In/Hr) for a 100.0 year storm
 COMMERCIAL subarea type
 Runoff Coefficient = 0.890
 Decimal fraction soil group A = 0.000
 Decimal fraction soil group B = 1.000
 Decimal fraction soil group C = 0.000
 Decimal fraction soil group D = 0.000
 RI index for soil (AMC 3) = 74.80
 Pervious area fraction = 0.100; Impervious fraction = 0.900
 Initial subarea runoff = 2.281 (CFS)
 Total initial stream area = 0.700 (Ac.)

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Pervious area fraction = 0.100

Process from Point/Station 110.000 to Point/Station 109.000
 **** CONFLUENCE OF MINOR STREAMS ****

Along Main Stream number: 1 in normal stream number 2
 Stream flow area = 0.700 (Ac.)
 Runoff from this stream = 2.281 (CFS)
 Time of concentration = 6.45 min.
 Rainfall intensity = 3.661 (In/Hr)
 Summary of stream data:

Stream No.	Flow rate (CFS)	TC (min)	Rainfall Intensity (In/Hr)
------------	-----------------	----------	----------------------------

1	3.327	7.11	3.486
2	2.281	6.45	3.661

Largest stream flow has longer time of concentration

Qp = 3.327 + sum of
 Qb Ia/Ib
 2.281 * 0.952 = 2.172
 Qp = 5.499

Total of 2 streams to confluence:
 Flow rates before confluence point:
 3.327 2.281

Area of streams before confluence:
 0.980 0.700

Results of confluence:
 Total flow rate = 5.499 (CFS)
 Time of concentration = 7.111 min.
 Effective stream area after confluence = 1.680 (Ac.)
 End of computations, total study area = 1.68 (Ac.)
 The following figures may be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction (Ap) = 0.100
 Area averaged RI index number = 56.0

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

- **Area 'A' – 10 Year 1 Hour Pre-Development Condition – Unit Hydrograph**

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
 Study date 07/23/20 File: ex10110.out

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Riverside County Synthetic Unit Hydrology Method
 RCFC & WCD Manual date - April 1978

Program License Serial Number 6407

 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

English Units used in output format

FARM MARKET EXPANSION
 EXISTING CONDITION UNIT HYDROGRAPH - 10 YEAR 1 HOUR STORM
 WMB & ASSOCIATES, JULY 2020
 BY: BRIAN LOWELL, PE

 Drainage Area = 1.63(Ac.) = 0.003 Sq. Mi.
 Drainage Area for Depth-Area Areal Adjustment = 1.63(Ac.) = 0.003 Sq. Mi.
 Length along longest watercourse = 355.00(Ft.)
 Length along longest watercourse measured to centroid = 169.00(Ft.)
 Length along longest watercourse = 0.067 Mi.
 Length along longest watercourse measured to centroid = 0.032 Mi.
 Difference in elevation = 7.90(Ft.)
 Slope along watercourse = 117.4986 Ft./Mi.
 Average Manning's 'N' = 0.020
 Lag time = 0.019 Hr.
 Lag time = 1.13 Min.
 25% of lag time = 0.28 Min.
 40% of lag time = 0.45 Min.
 Unit time = 5.00 Min.
 Duration of storm = 1 Hour(s)
 User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall(In) [2]	Weighting[1*2]
1.63	0.50	0.81

100 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall(In) [2]	Weighting[1*2]
1.63	1.20	1.96

STORM EVENT (YEAR) = 10.00
 Area Averaged 2-Year Rainfall = 0.500(In)
 Area Averaged 100-Year Rainfall = 1.200(In)

Point rain (area averaged) = 0.788(In)
 Areal adjustment factor = 100.00 %
 Adjusted average point rain = 0.788(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
1.630	67.30	0.360
Total Area Entered = 1.63(Ac.)		

RI	RI	Infil. Rate	Impervious	Adj. Infil. Rate	Area%	F
AMC2	AMC-2	(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
67.3	67.3	0.391	0.360	0.264	1.000	0.264
Sum (F) =						0.264

Area averaged mean soil loss (F) (In/Hr) = 0.264

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Minimum soil loss rate ((In/Hr)) = 0.132
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.612

Slope of intensity-duration curve for a 1 hour storm =0.5000

Unit Hydrograph
 VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	442.998	67.832
2	0.167	885.996	32.168
		Sum = 100.000	Sum= 1.643

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate (In./Hr) Max Low	Effective (In/Hr)
1	0.08	4.20	(0.264) 0.243	0.154
2	0.17	4.30	(0.264) 0.249	0.158
3	0.25	5.00	0.264 (0.289)	0.208
4	0.33	5.00	0.264 (0.289)	0.208
5	0.42	5.80	0.264 (0.336)	0.284
6	0.50	6.50	0.264 (0.376)	0.350
7	0.58	7.40	0.264 (0.428)	0.435
8	0.67	8.60	0.264 (0.498)	0.549
9	0.75	12.30	0.264 (0.712)	0.899
10	0.83	29.10	0.264 (1.684)	2.487
11	0.92	6.80	0.264 (0.394)	0.379
12	1.00	5.00	0.264 (0.289)	0.208

(Loss Rate Not Used)
 Sum = 100.0 Sum = 6.3

Flood volume = Effective rainfall 0.53(In) times area 1.6(Ac.) / [(In)/(Ft.)] = 0.1(Ac.Ft)
 Total soil loss = 0.26(In)
 Total soil loss = 0.035(Ac.Ft)
 Total rainfall = 0.79(In)
 Flood volume = 3116.0 Cubic Feet
 Total soil loss = 1546.3 Cubic Feet

Peak flow rate of this hydrograph = 3.248(CFS)

1 - H O U R S T O R M
 R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0012	0.17	Q				
0+10	0.0030	0.26	Q				
0+15	0.0051	0.32	QV				
0+20	0.0075	0.34	Q V				
0+25	0.0104	0.43	Q V				
0+30	0.0142	0.54	Q V				
0+35	0.0188	0.67	Q V				
0+40	0.0246	0.84	Q V				
0+45	0.0335	1.29	Q V				
0+50	0.0558	3.25	Q V				
0+55	0.0678	1.74	Q				V
1+ 0	0.0708	0.43	Q				V
1+ 5	0.0715	0.11	Q				V

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

- **Area 'A' – 10 Year 3 Hour Pre-Development Condition – Unit Hydrograph**

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
 Study date 07/23/20 File: ex10310.out

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Riverside County Synthetic Unit Hydrology Method
 RCFC & WCD Manual date - April 1978

Program License Serial Number 6407

English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

English Units used in output format

FARM MARKET EXPANSION
 EXISTING CONDITION UNIT HYDROGRAPH - 10 YEAR 3 HOUR STORM
 WMB & ASSOCIATES, JULY 2020
 BY: BRIAN LOWELL, PE

Drainage Area = 1.63(Ac.) = 0.003 Sq. Mi.
 Drainage Area for Depth-Area Areal Adjustment = 1.63(Ac.) = 0.003 Sq. Mi.
 Length along longest watercourse = 355.00(Ft.)
 Length along longest watercourse measured to centroid = 169.00(Ft.)
 Length along longest watercourse = 0.067 Mi.
 Length along longest watercourse measured to centroid = 0.032 Mi.
 Difference in elevation = 7.90(Ft.)
 Slope along watercourse = 117.4986 Ft./Mi.
 Average Manning's 'N' = 0.020
 Lag time = 0.019 Hr.
 Lag time = 1.13 Min.
 25% of lag time = 0.28 Min.
 40% of lag time = 0.45 Min.
 Unit time = 5.00 Min.
 Duration of storm = 3 Hour(s)
 User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall(In) [2]	Weighting[1*2]
1.63	0.80	1.30

100 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall(In) [2]	Weighting[1*2]
1.63	1.80	2.93

STORM EVENT (YEAR) = 10.00
 Area Averaged 2-Year Rainfall = 0.800(In)
 Area Averaged 100-Year Rainfall = 1.800(In)

Point rain (area averaged) = 1.211(In)
 Areal adjustment factor = 100.00 %
 Adjusted average point rain = 1.211(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
1.630	67.30	0.360
Total Area Entered = 1.63(Ac.)		

RI RI Infil. Rate Impervious Adj. Infil. Rate Area% F

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

AMC2	AMC-2	(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
67.3	67.3	0.391	0.360	0.264	1.000	0.264
					Sum (F) =	0.264

Area averaged mean soil loss (F) (In/Hr) = 0.264
 Minimum soil loss rate ((In/Hr)) = 0.132
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.612

Unit Hydrograph
 VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	442.998	67.832
2	0.167	885.996	32.168
		Sum = 100.000	Sum= 1.643

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate (In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.189	(0.264)	0.116	0.073
2	0.17	1.30	0.189	(0.264)	0.116	0.073
3	0.25	1.10	0.160	(0.264)	0.098	0.062
4	0.33	1.50	0.218	(0.264)	0.133	0.085
5	0.42	1.50	0.218	(0.264)	0.133	0.085
6	0.50	1.80	0.262	(0.264)	0.160	0.102
7	0.58	1.50	0.218	(0.264)	0.133	0.085
8	0.67	1.80	0.262	(0.264)	0.160	0.102
9	0.75	1.80	0.262	(0.264)	0.160	0.102
10	0.83	1.50	0.218	(0.264)	0.133	0.085
11	0.92	1.60	0.233	(0.264)	0.142	0.090
12	1.00	1.80	0.262	(0.264)	0.160	0.102
13	1.08	2.20	0.320	(0.264)	0.196	0.124
14	1.17	2.20	0.320	(0.264)	0.196	0.124
15	1.25	2.20	0.320	(0.264)	0.196	0.124
16	1.33	2.00	0.291	(0.264)	0.178	0.113
17	1.42	2.60	0.378	(0.264)	0.231	0.147
18	1.50	2.70	0.392	(0.264)	0.240	0.152
19	1.58	2.40	0.349	(0.264)	0.214	0.135
20	1.67	2.70	0.392	(0.264)	0.240	0.152
21	1.75	3.30	0.480	0.264 (0.294)	0.215	0.215
22	1.83	3.10	0.451	0.264 (0.276)	0.186	0.186
23	1.92	2.90	0.422	(0.264)	0.258	0.164
24	2.00	3.00	0.436	0.264 (0.267)	0.172	0.172
25	2.08	3.10	0.451	0.264 (0.276)	0.186	0.186
26	2.17	4.20	0.611	0.264 (0.374)	0.346	0.346
27	2.25	5.00	0.727	0.264 (0.445)	0.462	0.462
28	2.33	3.50	0.509	0.264 (0.311)	0.244	0.244
29	2.42	6.80	0.989	0.264 (0.605)	0.724	0.724
30	2.50	7.30	1.061	0.264 (0.649)	0.797	0.797
31	2.58	8.20	1.192	0.264 (0.730)	0.928	0.928
32	2.67	5.90	0.858	0.264 (0.525)	0.593	0.593
33	2.75	2.00	0.291	(0.264)	0.178	0.113
34	2.83	1.80	0.262	(0.264)	0.160	0.102
35	2.92	1.80	0.262	(0.264)	0.160	0.102
36	3.00	0.60	0.087	(0.264)	0.053	0.034

(Loss Rate Not Used)
 Sum = 100.0
 Flood volume = Effective rainfall 0.62(In)
 times area 1.6(Ac.) / [(In)/(Ft.)] = 0.1(Ac.Ft)
 Total soil loss = 0.59(In)
 Total soil loss = 0.080(Ac.Ft)
 Total rainfall = 1.21(In)
 Flood volume = 3689.4 Cubic Feet
 Total soil loss = 3478.4 Cubic Feet

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Peak flow rate of this hydrograph = 1.455(CFS)

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3 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time (h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0006	0.08	Q				
0+10	0.0014	0.12	Q				
0+15	0.0021	0.11	QV				
0+20	0.0030	0.13	QV				
0+25	0.0040	0.14	QV				
0+30	0.0051	0.16	Q V				
0+35	0.0061	0.15	Q V				
0+40	0.0072	0.16	Q V				
0+45	0.0083	0.17	Q V				
0+50	0.0093	0.15	Q V				
0+55	0.0103	0.15	Q V				
1+ 0	0.0114	0.16	Q V				
1+ 5	0.0128	0.19	Q V				
1+10	0.0142	0.20	Q V				
1+15	0.0156	0.20	Q V				
1+20	0.0169	0.19	Q V				
1+25	0.0184	0.22	Q V				
1+30	0.0201	0.25	Q V				
1+35	0.0217	0.23	Q V				
1+40	0.0234	0.24	Q V				
1+45	0.0256	0.32	Q V				
1+50	0.0278	0.32	Q V				
1+55	0.0297	0.28	Q V				
2+ 0	0.0317	0.28	Q V				
2+ 5	0.0337	0.30	Q V				
2+10	0.0370	0.48	Q V				
2+15	0.0419	0.70	Q V				
2+20	0.0454	0.52	Q V				
2+25	0.0519	0.94	Q V				
2+30	0.0606	1.27	Q V				
2+35	0.0706	1.46	Q V				
2+40	0.0786	1.15	Q V				
2+45	0.0816	0.44	Q V				
2+50	0.0828	0.17	Q V				
2+55	0.0839	0.17	Q V				
3+ 0	0.0846	0.09	Q V				
3+ 5	0.0847	0.02	Q V				

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

- **Area 'A' – 10 Year 6 Hour Pre-Development Condition – Unit Hydrograph**

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Unit Hydrograph Analysis

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Study date 07/23/20 File: ex10610.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6407

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

FARM MARKET EXPANSION
EXISTING CONDITION UNIT HYDROGRAPH - 10 YEAR 6 HOUR STORM
WMB & ASSOCIATES, JULY 2020
BY: BRIAN LOWELL, PE

Drainage Area = 1.63(Ac.) = 0.003 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 1.63(Ac.) = 0.003 Sq. Mi.
Length along longest watercourse = 355.00(Ft.)
Length along longest watercourse measured to centroid = 169.00(Ft.)
Length along longest watercourse = 0.067 Mi.
Length along longest watercourse measured to centroid = 0.032 Mi.
Difference in elevation = 7.90(Ft.)
Slope along watercourse = 117.4986 Ft./Mi.
Average Manning's 'N' = 0.020
Lag time = 0.019 Hr.
Lag time = 1.13 Min.
25% of lag time = 0.28 Min.
40% of lag time = 0.45 Min.
Unit time = 5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.) [1] Rainfall(In) [2] Weighting[1*2]
1.63 1.20 1.96

100 YEAR Area rainfall data:

Area(Ac.) [1] Rainfall(In) [2] Weighting[1*2]
1.63 2.50 4.07

STORM EVENT (YEAR) = 10.00
Area Averaged 2-Year Rainfall = 1.200(In)
Area Averaged 100-Year Rainfall = 2.500(In)

Point rain (area averaged) = 1.735(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 1.735(In)

Sub-Area Data:
Area(Ac.) Runoff Index Impervious %
1.630 67.30 0.360
Total Area Entered = 1.63(Ac.)

RI RI Infil. Rate Impervious Adj. Infil. Rate Area% F

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

AMC2	AMC-2	(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
67.3	67.3	0.391	0.360	0.264	1.000	0.264
					Sum (F) =	0.264

Area averaged mean soil loss (F) (In/Hr) = 0.264
 Minimum soil loss rate ((In/Hr)) = 0.132
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.612

Unit Hydrograph
 VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	442.998	67.832
2	0.167	885.996	32.168
		Sum = 100.000	Sum= 1.643

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr)		Effective (In/Hr)
				Max	Low	
1	0.08	0.50	0.104	(0.264)	0.064	0.040
2	0.17	0.60	0.125	(0.264)	0.076	0.048
3	0.25	0.60	0.125	(0.264)	0.076	0.048
4	0.33	0.60	0.125	(0.264)	0.076	0.048
5	0.42	0.60	0.125	(0.264)	0.076	0.048
6	0.50	0.70	0.146	(0.264)	0.089	0.057
7	0.58	0.70	0.146	(0.264)	0.089	0.057
8	0.67	0.70	0.146	(0.264)	0.089	0.057
9	0.75	0.70	0.146	(0.264)	0.089	0.057
10	0.83	0.70	0.146	(0.264)	0.089	0.057
11	0.92	0.70	0.146	(0.264)	0.089	0.057
12	1.00	0.80	0.167	(0.264)	0.102	0.065
13	1.08	0.80	0.167	(0.264)	0.102	0.065
14	1.17	0.80	0.167	(0.264)	0.102	0.065
15	1.25	0.80	0.167	(0.264)	0.102	0.065
16	1.33	0.80	0.167	(0.264)	0.102	0.065
17	1.42	0.80	0.167	(0.264)	0.102	0.065
18	1.50	0.80	0.167	(0.264)	0.102	0.065
19	1.58	0.80	0.167	(0.264)	0.102	0.065
20	1.67	0.80	0.167	(0.264)	0.102	0.065
21	1.75	0.80	0.167	(0.264)	0.102	0.065
22	1.83	0.80	0.167	(0.264)	0.102	0.065
23	1.92	0.80	0.167	(0.264)	0.102	0.065
24	2.00	0.90	0.187	(0.264)	0.115	0.073
25	2.08	0.80	0.167	(0.264)	0.102	0.065
26	2.17	0.90	0.187	(0.264)	0.115	0.073
27	2.25	0.90	0.187	(0.264)	0.115	0.073
28	2.33	0.90	0.187	(0.264)	0.115	0.073
29	2.42	0.90	0.187	(0.264)	0.115	0.073
30	2.50	0.90	0.187	(0.264)	0.115	0.073
31	2.58	0.90	0.187	(0.264)	0.115	0.073
32	2.67	0.90	0.187	(0.264)	0.115	0.073
33	2.75	1.00	0.208	(0.264)	0.127	0.081
34	2.83	1.00	0.208	(0.264)	0.127	0.081
35	2.92	1.00	0.208	(0.264)	0.127	0.081
36	3.00	1.00	0.208	(0.264)	0.127	0.081
37	3.08	1.00	0.208	(0.264)	0.127	0.081
38	3.17	1.10	0.229	(0.264)	0.140	0.089
39	3.25	1.10	0.229	(0.264)	0.140	0.089
40	3.33	1.10	0.229	(0.264)	0.140	0.089
41	3.42	1.20	0.250	(0.264)	0.153	0.097
42	3.50	1.30	0.271	(0.264)	0.166	0.105
43	3.58	1.40	0.291	(0.264)	0.178	0.113
44	3.67	1.40	0.291	(0.264)	0.178	0.113
45	3.75	1.50	0.312	(0.264)	0.191	0.121
46	3.83	1.50	0.312	(0.264)	0.191	0.121

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

47	3.92	1.60	0.333	(0.264)	0.204	0.129
48	4.00	1.60	0.333	(0.264)	0.204	0.129
49	4.08	1.70	0.354	(0.264)	0.217	0.137
50	4.17	1.80	0.375	(0.264)	0.229	0.145
51	4.25	1.90	0.396	(0.264)	0.242	0.153
52	4.33	2.00	0.416	(0.264)	0.255	0.162
53	4.42	2.10	0.437	0.264	(0.268)	0.173
54	4.50	2.10	0.437	0.264	(0.268)	0.173
55	4.58	2.20	0.458	0.264	(0.280)	0.194
56	4.67	2.30	0.479	0.264	(0.293)	0.214
57	4.75	2.40	0.500	0.264	(0.306)	0.235
58	4.83	2.40	0.500	0.264	(0.306)	0.235
59	4.92	2.50	0.520	0.264	(0.319)	0.256
60	5.00	2.60	0.541	0.264	(0.331)	0.277
61	5.08	3.10	0.645	0.264	(0.395)	0.381
62	5.17	3.60	0.749	0.264	(0.459)	0.485
63	5.25	3.90	0.812	0.264	(0.497)	0.547
64	5.33	4.20	0.874	0.264	(0.535)	0.610
65	5.42	4.70	0.978	0.264	(0.599)	0.714
66	5.50	5.60	1.166	0.264	(0.713)	0.901
67	5.58	1.90	0.396	(0.264)	0.242	0.153
68	5.67	0.90	0.187	(0.264)	0.115	0.073
69	5.75	0.60	0.125	(0.264)	0.076	0.048
70	5.83	0.50	0.104	(0.264)	0.064	0.040
71	5.92	0.30	0.062	(0.264)	0.038	0.024
72	6.00	0.20	0.042	(0.264)	0.025	0.016

(Loss Rate Not Used)

Sum = 100.0 Sum = 9.9

Flood volume = Effective rainfall 0.83(In)
times area 1.6(Ac.)/[(In)/(Ft.)] = 0.1(Ac.Ft)

Total soil loss = 0.91(In)

Total soil loss = 0.123(Ac.Ft)

Total rainfall = 1.73(In)

Flood volume = 4902.6 Cubic Feet

Total soil loss = 5362.1 Cubic Feet

Peak flow rate of this hydrograph = 1.382 (CFS)

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6 - H O U R S T O R M

R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0003	0.05	Q				
0+10	0.0008	0.08	Q				
0+15	0.0014	0.08	Q				
0+20	0.0019	0.08	Q				
0+25	0.0025	0.08	Q				
0+30	0.0031	0.09	QV				
0+35	0.0037	0.09	QV				
0+40	0.0044	0.09	QV				
0+45	0.0050	0.09	QV				
0+50	0.0056	0.09	Q V				
0+55	0.0063	0.09	Q V				
1+ 0	0.0070	0.10	Q V				
1+ 5	0.0077	0.11	Q V				
1+10	0.0085	0.11	Q V				
1+15	0.0092	0.11	Q V				
1+20	0.0099	0.11	Q V				
1+25	0.0106	0.11	Q V				
1+30	0.0114	0.11	Q V				
1+35	0.0121	0.11	Q V				
1+40	0.0128	0.11	Q V				
1+45	0.0136	0.11	Q V				
1+50	0.0143	0.11	Q V				
1+55	0.0150	0.11	Q V				
2+ 0	0.0158	0.12	Q V				
2+ 5	0.0166	0.11	Q V				
2+10	0.0174	0.12	Q V				
2+15	0.0182	0.12	Q V				

2+20	0.0190	0.12	Q	V						
2+25	0.0199	0.12	Q	V						
2+30	0.0207	0.12	Q	V						
2+35	0.0215	0.12	Q	V						
2+40	0.0223	0.12	Q	V						
2+45	0.0232	0.13	Q	V						
2+50	0.0241	0.13	Q	V						
2+55	0.0250	0.13	Q	V						
3+ 0	0.0259	0.13	Q	V						
3+ 5	0.0269	0.13	Q	V						
3+10	0.0278	0.14	Q	V						
3+15	0.0288	0.15	Q	V						
3+20	0.0298	0.15	Q	V						
3+25	0.0309	0.16	Q	V						
3+30	0.0321	0.17	Q	V						
3+35	0.0333	0.18	Q	V						
3+40	0.0346	0.19	Q	V						
3+45	0.0359	0.19	Q	V						
3+50	0.0373	0.20	Q	V						
3+55	0.0388	0.21	Q	V						
4+ 0	0.0402	0.21	Q	V						
4+ 5	0.0417	0.22	Q	V						
4+10	0.0434	0.23	Q	V						
4+15	0.0451	0.25	Q	V						
4+20	0.0469	0.26	Q	V						
4+25	0.0488	0.28	Q	V						
4+30	0.0507	0.28	Q	V						
4+35	0.0528	0.31	Q	V						
4+40	0.0552	0.34	Q	V						
4+45	0.0578	0.38	Q	V						
4+50	0.0604	0.39	Q	V						
4+55	0.0633	0.41	Q	V						
5+ 0	0.0663	0.44	Q	V						
5+ 5	0.0703	0.57	Q	V						
5+10	0.0754	0.74	Q	V						
5+15	0.0813	0.87	Q	V						
5+20	0.0880	0.97	Q	V						
5+25	0.0957	1.12	Q	V						
5+30	0.1052	1.38	Q	V						
5+35	0.1097	0.65	Q	V						
5+40	0.1108	0.16	Q	V						
5+45	0.1115	0.09	Q	V						
5+50	0.1119	0.07	Q	V						
5+55	0.1123	0.05	Q	V						
6+ 0	0.1125	0.03	Q	V						
6+ 5	0.1125	0.01	Q	V						

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

- **Area 'A' – 10 Year 24 Hour Pre-Development Condition – Unit Hydrograph**

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
Study date 07/23/20 File: ex102410.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6407

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

FARM MARKET EXPANSION
EXISTING CONDITION UNIT HYDROGRAPH - 10 YEAR 24 HOUR STORM
WMB & ASSOCIATES, JULY 2020
BY: BRIAN LOWELL, PE

Drainage Area = 1.63(Ac.) = 0.003 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 1.63(Ac.) = 0.003 Sq. Mi.
Length along longest watercourse = 355.00(Ft.)
Length along longest watercourse measured to centroid = 169.00(Ft.)
Length along longest watercourse = 0.067 Mi.
Length along longest watercourse measured to centroid = 0.032 Mi.
Difference in elevation = 7.90(Ft.)
Slope along watercourse = 117.4986 Ft./Mi.
Average Manning's 'N' = 0.020
Lag time = 0.019 Hr.
Lag time = 1.13 Min.
25% of lag time = 0.28 Min.
40% of lag time = 0.45 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.) [1] Rainfall(In) [2] Weighting[1*2]
1.63 1.80 2.93

100 YEAR Area rainfall data:

Area(Ac.) [1] Rainfall(In) [2] Weighting[1*2]
1.63 4.50 7.33

STORM EVENT (YEAR) = 10.00
Area Averaged 2-Year Rainfall = 1.800(In)
Area Averaged 100-Year Rainfall = 4.500(In)

Point rain (area averaged) = 2.911(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 2.911(In)

Sub-Area Data:
Area(Ac.) Runoff Index Impervious %
1.630 67.30 0.360
Total Area Entered = 1.63(Ac.)

RI RI Infil. Rate Impervious Adj. Infil. Rate Area% F

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

AMC2	AMC-2	(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
67.3	67.3	0.391	0.360	0.264	1.000	0.264
					Sum (F) =	0.264

Area averaged mean soil loss (F) (In/Hr) = 0.264
 Minimum soil loss rate ((In/Hr)) = 0.132
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.612

Unit Hydrograph
 VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	442.998	67.832
2	0.167	885.996	32.168
		Sum = 100.000	Sum= 1.643

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr)		Effective (In/Hr)
				Max	Low	
1	0.08	0.07	0.023	(0.469)	0.014	0.009
2	0.17	0.07	0.023	(0.467)	0.014	0.009
3	0.25	0.07	0.023	(0.465)	0.014	0.009
4	0.33	0.10	0.035	(0.463)	0.021	0.014
5	0.42	0.10	0.035	(0.462)	0.021	0.014
6	0.50	0.10	0.035	(0.460)	0.021	0.014
7	0.58	0.10	0.035	(0.458)	0.021	0.014
8	0.67	0.10	0.035	(0.456)	0.021	0.014
9	0.75	0.10	0.035	(0.454)	0.021	0.014
10	0.83	0.13	0.047	(0.453)	0.029	0.018
11	0.92	0.13	0.047	(0.451)	0.029	0.018
12	1.00	0.13	0.047	(0.449)	0.029	0.018
13	1.08	0.10	0.035	(0.447)	0.021	0.014
14	1.17	0.10	0.035	(0.445)	0.021	0.014
15	1.25	0.10	0.035	(0.444)	0.021	0.014
16	1.33	0.10	0.035	(0.442)	0.021	0.014
17	1.42	0.10	0.035	(0.440)	0.021	0.014
18	1.50	0.10	0.035	(0.438)	0.021	0.014
19	1.58	0.10	0.035	(0.437)	0.021	0.014
20	1.67	0.10	0.035	(0.435)	0.021	0.014
21	1.75	0.10	0.035	(0.433)	0.021	0.014
22	1.83	0.13	0.047	(0.431)	0.029	0.018
23	1.92	0.13	0.047	(0.430)	0.029	0.018
24	2.00	0.13	0.047	(0.428)	0.029	0.018
25	2.08	0.13	0.047	(0.426)	0.029	0.018
26	2.17	0.13	0.047	(0.424)	0.029	0.018
27	2.25	0.13	0.047	(0.423)	0.029	0.018
28	2.33	0.13	0.047	(0.421)	0.029	0.018
29	2.42	0.13	0.047	(0.419)	0.029	0.018
30	2.50	0.13	0.047	(0.418)	0.029	0.018
31	2.58	0.17	0.058	(0.416)	0.036	0.023
32	2.67	0.17	0.058	(0.414)	0.036	0.023
33	2.75	0.17	0.058	(0.412)	0.036	0.023
34	2.83	0.17	0.058	(0.411)	0.036	0.023
35	2.92	0.17	0.058	(0.409)	0.036	0.023
36	3.00	0.17	0.058	(0.407)	0.036	0.023
37	3.08	0.17	0.058	(0.406)	0.036	0.023
38	3.17	0.17	0.058	(0.404)	0.036	0.023
39	3.25	0.17	0.058	(0.402)	0.036	0.023
40	3.33	0.17	0.058	(0.401)	0.036	0.023
41	3.42	0.17	0.058	(0.399)	0.036	0.023
42	3.50	0.17	0.058	(0.397)	0.036	0.023
43	3.58	0.17	0.058	(0.396)	0.036	0.023
44	3.67	0.17	0.058	(0.394)	0.036	0.023
45	3.75	0.17	0.058	(0.392)	0.036	0.023
46	3.83	0.20	0.070	(0.391)	0.043	0.027

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

47	3.92	0.20	0.070	(0.389)	0.043	0.027
48	4.00	0.20	0.070	(0.387)	0.043	0.027
49	4.08	0.20	0.070	(0.386)	0.043	0.027
50	4.17	0.20	0.070	(0.384)	0.043	0.027
51	4.25	0.20	0.070	(0.382)	0.043	0.027
52	4.33	0.23	0.082	(0.381)	0.050	0.032
53	4.42	0.23	0.082	(0.379)	0.050	0.032
54	4.50	0.23	0.082	(0.378)	0.050	0.032
55	4.58	0.23	0.082	(0.376)	0.050	0.032
56	4.67	0.23	0.082	(0.374)	0.050	0.032
57	4.75	0.23	0.082	(0.373)	0.050	0.032
58	4.83	0.27	0.093	(0.371)	0.057	0.036
59	4.92	0.27	0.093	(0.370)	0.057	0.036
60	5.00	0.27	0.093	(0.368)	0.057	0.036
61	5.08	0.20	0.070	(0.366)	0.043	0.027
62	5.17	0.20	0.070	(0.365)	0.043	0.027
63	5.25	0.20	0.070	(0.363)	0.043	0.027
64	5.33	0.23	0.082	(0.362)	0.050	0.032
65	5.42	0.23	0.082	(0.360)	0.050	0.032
66	5.50	0.23	0.082	(0.358)	0.050	0.032
67	5.58	0.27	0.093	(0.357)	0.057	0.036
68	5.67	0.27	0.093	(0.355)	0.057	0.036
69	5.75	0.27	0.093	(0.354)	0.057	0.036
70	5.83	0.27	0.093	(0.352)	0.057	0.036
71	5.92	0.27	0.093	(0.351)	0.057	0.036
72	6.00	0.27	0.093	(0.349)	0.057	0.036
73	6.08	0.30	0.105	(0.347)	0.064	0.041
74	6.17	0.30	0.105	(0.346)	0.064	0.041
75	6.25	0.30	0.105	(0.344)	0.064	0.041
76	6.33	0.30	0.105	(0.343)	0.064	0.041
77	6.42	0.30	0.105	(0.341)	0.064	0.041
78	6.50	0.30	0.105	(0.340)	0.064	0.041
79	6.58	0.33	0.116	(0.338)	0.071	0.045
80	6.67	0.33	0.116	(0.337)	0.071	0.045
81	6.75	0.33	0.116	(0.335)	0.071	0.045
82	6.83	0.33	0.116	(0.334)	0.071	0.045
83	6.92	0.33	0.116	(0.332)	0.071	0.045
84	7.00	0.33	0.116	(0.331)	0.071	0.045
85	7.08	0.33	0.116	(0.329)	0.071	0.045
86	7.17	0.33	0.116	(0.328)	0.071	0.045
87	7.25	0.33	0.116	(0.326)	0.071	0.045
88	7.33	0.37	0.128	(0.325)	0.078	0.050
89	7.42	0.37	0.128	(0.323)	0.078	0.050
90	7.50	0.37	0.128	(0.322)	0.078	0.050
91	7.58	0.40	0.140	(0.320)	0.086	0.054
92	7.67	0.40	0.140	(0.319)	0.086	0.054
93	7.75	0.40	0.140	(0.317)	0.086	0.054
94	7.83	0.43	0.151	(0.316)	0.093	0.059
95	7.92	0.43	0.151	(0.314)	0.093	0.059
96	8.00	0.43	0.151	(0.313)	0.093	0.059
97	8.08	0.50	0.175	(0.311)	0.107	0.068
98	8.17	0.50	0.175	(0.310)	0.107	0.068
99	8.25	0.50	0.175	(0.309)	0.107	0.068
100	8.33	0.50	0.175	(0.307)	0.107	0.068
101	8.42	0.50	0.175	(0.306)	0.107	0.068
102	8.50	0.50	0.175	(0.304)	0.107	0.068
103	8.58	0.53	0.186	(0.303)	0.114	0.072
104	8.67	0.53	0.186	(0.301)	0.114	0.072
105	8.75	0.53	0.186	(0.300)	0.114	0.072
106	8.83	0.57	0.198	(0.299)	0.121	0.077
107	8.92	0.57	0.198	(0.297)	0.121	0.077
108	9.00	0.57	0.198	(0.296)	0.121	0.077
109	9.08	0.63	0.221	(0.294)	0.135	0.086
110	9.17	0.63	0.221	(0.293)	0.135	0.086
111	9.25	0.63	0.221	(0.292)	0.135	0.086
112	9.33	0.67	0.233	(0.290)	0.143	0.090
113	9.42	0.67	0.233	(0.289)	0.143	0.090
114	9.50	0.67	0.233	(0.287)	0.143	0.090
115	9.58	0.70	0.245	(0.286)	0.150	0.095
116	9.67	0.70	0.245	(0.285)	0.150	0.095
117	9.75	0.70	0.245	(0.283)	0.150	0.095
118	9.83	0.73	0.256	(0.282)	0.157	0.099
119	9.92	0.73	0.256	(0.281)	0.157	0.099
120	10.00	0.73	0.256	(0.279)	0.157	0.099

121	10.08	0.50	0.175	(0.278)	0.107	0.068
122	10.17	0.50	0.175	(0.277)	0.107	0.068
123	10.25	0.50	0.175	(0.275)	0.107	0.068
124	10.33	0.50	0.175	(0.274)	0.107	0.068
125	10.42	0.50	0.175	(0.273)	0.107	0.068
126	10.50	0.50	0.175	(0.271)	0.107	0.068
127	10.58	0.67	0.233	(0.270)	0.143	0.090
128	10.67	0.67	0.233	(0.269)	0.143	0.090
129	10.75	0.67	0.233	(0.267)	0.143	0.090
130	10.83	0.67	0.233	(0.266)	0.143	0.090
131	10.92	0.67	0.233	(0.265)	0.143	0.090
132	11.00	0.67	0.233	(0.263)	0.143	0.090
133	11.08	0.63	0.221	(0.262)	0.135	0.086
134	11.17	0.63	0.221	(0.261)	0.135	0.086
135	11.25	0.63	0.221	(0.259)	0.135	0.086
136	11.33	0.63	0.221	(0.258)	0.135	0.086
137	11.42	0.63	0.221	(0.257)	0.135	0.086
138	11.50	0.63	0.221	(0.256)	0.135	0.086
139	11.58	0.57	0.198	(0.254)	0.121	0.077
140	11.67	0.57	0.198	(0.253)	0.121	0.077
141	11.75	0.57	0.198	(0.252)	0.121	0.077
142	11.83	0.60	0.210	(0.251)	0.128	0.081
143	11.92	0.60	0.210	(0.249)	0.128	0.081
144	12.00	0.60	0.210	(0.248)	0.128	0.081
145	12.08	0.83	0.291	(0.247)	0.178	0.113
146	12.17	0.83	0.291	(0.246)	0.178	0.113
147	12.25	0.83	0.291	(0.244)	0.178	0.113
148	12.33	0.87	0.303	(0.243)	0.185	0.117
149	12.42	0.87	0.303	(0.242)	0.185	0.117
150	12.50	0.87	0.303	(0.241)	0.185	0.117
151	12.58	0.93	0.326	(0.239)	0.200	0.126
152	12.67	0.93	0.326	(0.238)	0.200	0.126
153	12.75	0.93	0.326	(0.237)	0.200	0.126
154	12.83	0.97	0.338	(0.236)	0.207	0.131
155	12.92	0.97	0.338	(0.235)	0.207	0.131
156	13.00	0.97	0.338	(0.234)	0.207	0.131
157	13.08	1.13	0.396	0.232 (0.242)		0.164
158	13.17	1.13	0.396	0.231 (0.242)		0.165
159	13.25	1.13	0.396	0.230 (0.242)		0.166
160	13.33	1.13	0.396	0.229 (0.242)		0.167
161	13.42	1.13	0.396	0.228 (0.242)		0.168
162	13.50	1.13	0.396	0.226 (0.242)		0.169
163	13.58	0.77	0.268	(0.225)	0.164	0.104
164	13.67	0.77	0.268	(0.224)	0.164	0.104
165	13.75	0.77	0.268	(0.223)	0.164	0.104
166	13.83	0.77	0.268	(0.222)	0.164	0.104
167	13.92	0.77	0.268	(0.221)	0.164	0.104
168	14.00	0.77	0.268	(0.220)	0.164	0.104
169	14.08	0.90	0.314	(0.219)	0.192	0.122
170	14.17	0.90	0.314	(0.217)	0.192	0.122
171	14.25	0.90	0.314	(0.216)	0.192	0.122
172	14.33	0.87	0.303	(0.215)	0.185	0.117
173	14.42	0.87	0.303	(0.214)	0.185	0.117
174	14.50	0.87	0.303	(0.213)	0.185	0.117
175	14.58	0.87	0.303	(0.212)	0.185	0.117
176	14.67	0.87	0.303	(0.211)	0.185	0.117
177	14.75	0.87	0.303	(0.210)	0.185	0.117
178	14.83	0.83	0.291	(0.209)	0.178	0.113
179	14.92	0.83	0.291	(0.208)	0.178	0.113
180	15.00	0.83	0.291	(0.207)	0.178	0.113
181	15.08	0.80	0.279	(0.205)	0.171	0.108
182	15.17	0.80	0.279	(0.204)	0.171	0.108
183	15.25	0.80	0.279	(0.203)	0.171	0.108
184	15.33	0.77	0.268	(0.202)	0.164	0.104
185	15.42	0.77	0.268	(0.201)	0.164	0.104
186	15.50	0.77	0.268	(0.200)	0.164	0.104
187	15.58	0.63	0.221	(0.199)	0.135	0.086
188	15.67	0.63	0.221	(0.198)	0.135	0.086
189	15.75	0.63	0.221	(0.197)	0.135	0.086
190	15.83	0.63	0.221	(0.196)	0.135	0.086
191	15.92	0.63	0.221	(0.195)	0.135	0.086
192	16.00	0.63	0.221	(0.194)	0.135	0.086
193	16.08	0.13	0.047	(0.193)	0.029	0.018
194	16.17	0.13	0.047	(0.192)	0.029	0.018

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195	16.25	0.13	0.047	(0.191)	0.029	0.018
196	16.33	0.13	0.047	(0.190)	0.029	0.018
197	16.42	0.13	0.047	(0.189)	0.029	0.018
198	16.50	0.13	0.047	(0.188)	0.029	0.018
199	16.58	0.10	0.035	(0.187)	0.021	0.014
200	16.67	0.10	0.035	(0.186)	0.021	0.014
201	16.75	0.10	0.035	(0.185)	0.021	0.014
202	16.83	0.10	0.035	(0.185)	0.021	0.014
203	16.92	0.10	0.035	(0.184)	0.021	0.014
204	17.00	0.10	0.035	(0.183)	0.021	0.014
205	17.08	0.17	0.058	(0.182)	0.036	0.023
206	17.17	0.17	0.058	(0.181)	0.036	0.023
207	17.25	0.17	0.058	(0.180)	0.036	0.023
208	17.33	0.17	0.058	(0.179)	0.036	0.023
209	17.42	0.17	0.058	(0.178)	0.036	0.023
210	17.50	0.17	0.058	(0.177)	0.036	0.023
211	17.58	0.17	0.058	(0.176)	0.036	0.023
212	17.67	0.17	0.058	(0.175)	0.036	0.023
213	17.75	0.17	0.058	(0.175)	0.036	0.023
214	17.83	0.13	0.047	(0.174)	0.029	0.018
215	17.92	0.13	0.047	(0.173)	0.029	0.018
216	18.00	0.13	0.047	(0.172)	0.029	0.018
217	18.08	0.13	0.047	(0.171)	0.029	0.018
218	18.17	0.13	0.047	(0.170)	0.029	0.018
219	18.25	0.13	0.047	(0.169)	0.029	0.018
220	18.33	0.13	0.047	(0.169)	0.029	0.018
221	18.42	0.13	0.047	(0.168)	0.029	0.018
222	18.50	0.13	0.047	(0.167)	0.029	0.018
223	18.58	0.10	0.035	(0.166)	0.021	0.014
224	18.67	0.10	0.035	(0.165)	0.021	0.014
225	18.75	0.10	0.035	(0.165)	0.021	0.014
226	18.83	0.07	0.023	(0.164)	0.014	0.009
227	18.92	0.07	0.023	(0.163)	0.014	0.009
228	19.00	0.07	0.023	(0.162)	0.014	0.009
229	19.08	0.10	0.035	(0.161)	0.021	0.014
230	19.17	0.10	0.035	(0.161)	0.021	0.014
231	19.25	0.10	0.035	(0.160)	0.021	0.014
232	19.33	0.13	0.047	(0.159)	0.029	0.018
233	19.42	0.13	0.047	(0.159)	0.029	0.018
234	19.50	0.13	0.047	(0.158)	0.029	0.018
235	19.58	0.10	0.035	(0.157)	0.021	0.014
236	19.67	0.10	0.035	(0.156)	0.021	0.014
237	19.75	0.10	0.035	(0.156)	0.021	0.014
238	19.83	0.07	0.023	(0.155)	0.014	0.009
239	19.92	0.07	0.023	(0.154)	0.014	0.009
240	20.00	0.07	0.023	(0.154)	0.014	0.009
241	20.08	0.10	0.035	(0.153)	0.021	0.014
242	20.17	0.10	0.035	(0.152)	0.021	0.014
243	20.25	0.10	0.035	(0.152)	0.021	0.014
244	20.33	0.10	0.035	(0.151)	0.021	0.014
245	20.42	0.10	0.035	(0.150)	0.021	0.014
246	20.50	0.10	0.035	(0.150)	0.021	0.014
247	20.58	0.10	0.035	(0.149)	0.021	0.014
248	20.67	0.10	0.035	(0.148)	0.021	0.014
249	20.75	0.10	0.035	(0.148)	0.021	0.014
250	20.83	0.07	0.023	(0.147)	0.014	0.009
251	20.92	0.07	0.023	(0.147)	0.014	0.009
252	21.00	0.07	0.023	(0.146)	0.014	0.009
253	21.08	0.10	0.035	(0.145)	0.021	0.014
254	21.17	0.10	0.035	(0.145)	0.021	0.014
255	21.25	0.10	0.035	(0.144)	0.021	0.014
256	21.33	0.07	0.023	(0.144)	0.014	0.009
257	21.42	0.07	0.023	(0.143)	0.014	0.009
258	21.50	0.07	0.023	(0.143)	0.014	0.009
259	21.58	0.10	0.035	(0.142)	0.021	0.014
260	21.67	0.10	0.035	(0.142)	0.021	0.014
261	21.75	0.10	0.035	(0.141)	0.021	0.014
262	21.83	0.07	0.023	(0.141)	0.014	0.009
263	21.92	0.07	0.023	(0.140)	0.014	0.009
264	22.00	0.07	0.023	(0.140)	0.014	0.009
265	22.08	0.10	0.035	(0.139)	0.021	0.014
266	22.17	0.10	0.035	(0.139)	0.021	0.014
267	22.25	0.10	0.035	(0.138)	0.021	0.014
268	22.33	0.07	0.023	(0.138)	0.014	0.009

269	22.42	0.07	0.023	(0.137)	0.014	0.009
270	22.50	0.07	0.023	(0.137)	0.014	0.009
271	22.58	0.07	0.023	(0.137)	0.014	0.009
272	22.67	0.07	0.023	(0.136)	0.014	0.009
273	22.75	0.07	0.023	(0.136)	0.014	0.009
274	22.83	0.07	0.023	(0.135)	0.014	0.009
275	22.92	0.07	0.023	(0.135)	0.014	0.009
276	23.00	0.07	0.023	(0.135)	0.014	0.009
277	23.08	0.07	0.023	(0.135)	0.014	0.009
278	23.17	0.07	0.023	(0.134)	0.014	0.009
279	23.25	0.07	0.023	(0.134)	0.014	0.009
280	23.33	0.07	0.023	(0.134)	0.014	0.009
281	23.42	0.07	0.023	(0.133)	0.014	0.009
282	23.50	0.07	0.023	(0.133)	0.014	0.009
283	23.58	0.07	0.023	(0.133)	0.014	0.009
284	23.67	0.07	0.023	(0.133)	0.014	0.009
285	23.75	0.07	0.023	(0.133)	0.014	0.009
286	23.83	0.07	0.023	(0.132)	0.014	0.009
287	23.92	0.07	0.023	(0.132)	0.014	0.009
288	24.00	0.07	0.023	(0.132)	0.014	0.009

(Loss Rate Not Used)

Sum = 100.0 Sum = 13.6

Flood volume = Effective rainfall 1.14 (In)
times area 1.6 (Ac.) / [(In) / (Ft.)] = 0.2 (Ac.Ft)
Total soil loss = 1.77 (In)
Total soil loss = 0.241 (Ac.Ft)
Total rainfall = 2.91 (In)
Flood volume = 6720.6 Cubic Feet
Total soil loss = 10502.3 Cubic Feet

Peak flow rate of this hydrograph = 0.278 (CFS)

+-----+
24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time (h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0001	0.01	Q				
0+10	0.0002	0.01	Q				
0+15	0.0003	0.01	Q				
0+20	0.0004	0.02	Q				
0+25	0.0006	0.02	Q				
0+30	0.0007	0.02	Q				
0+35	0.0009	0.02	Q				
0+40	0.0010	0.02	Q				
0+45	0.0012	0.02	Q				
0+50	0.0014	0.03	Q				
0+55	0.0016	0.03	Q				
1+ 0	0.0018	0.03	Q				
1+ 5	0.0019	0.02	Q				
1+10	0.0021	0.02	Q				
1+15	0.0023	0.02	Q				
1+20	0.0024	0.02	Q				
1+25	0.0026	0.02	Q				
1+30	0.0027	0.02	Q				
1+35	0.0029	0.02	Q				
1+40	0.0030	0.02	Q				
1+45	0.0032	0.02	Q				
1+50	0.0034	0.03	Q				
1+55	0.0036	0.03	Q				
2+ 0	0.0038	0.03	Q				
2+ 5	0.0040	0.03	QV				
2+10	0.0042	0.03	QV				
2+15	0.0044	0.03	QV				
2+20	0.0046	0.03	QV				
2+25	0.0048	0.03	QV				
2+30	0.0050	0.03	QV				
2+35	0.0052	0.03	QV				
2+40	0.0055	0.04	QV				
2+45	0.0057	0.04	QV				

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2+50	0.0060	0.04	QV				
2+55	0.0063	0.04	QV				
3+ 0	0.0065	0.04	QV				
3+ 5	0.0068	0.04	QV				
3+10	0.0070	0.04	QV				
3+15	0.0073	0.04	QV				
3+20	0.0075	0.04	QV				
3+25	0.0078	0.04	Q V				
3+30	0.0080	0.04	Q V				
3+35	0.0083	0.04	Q V				
3+40	0.0086	0.04	Q V				
3+45	0.0088	0.04	Q V				
3+50	0.0091	0.04	Q V				
3+55	0.0094	0.04	Q V				
4+ 0	0.0097	0.04	Q V				
4+ 5	0.0100	0.04	Q V				
4+10	0.0103	0.04	Q V				
4+15	0.0106	0.04	Q V				
4+20	0.0110	0.05	Q V				
4+25	0.0113	0.05	Q V				
4+30	0.0117	0.05	Q V				
4+35	0.0121	0.05	Q V				
4+40	0.0124	0.05	Q V				
4+45	0.0128	0.05	Q V				
4+50	0.0132	0.06	Q V				
4+55	0.0136	0.06	Q V				
5+ 0	0.0140	0.06	Q V				
5+ 5	0.0143	0.05	Q V				
5+10	0.0146	0.04	Q V				
5+15	0.0149	0.04	Q V				
5+20	0.0153	0.05	Q V				
5+25	0.0156	0.05	Q V				
5+30	0.0160	0.05	Q V				
5+35	0.0164	0.06	Q V				
5+40	0.0168	0.06	Q V				
5+45	0.0172	0.06	Q V				
5+50	0.0176	0.06	Q V				
5+55	0.0180	0.06	Q V				
6+ 0	0.0184	0.06	Q V				
6+ 5	0.0189	0.06	Q V				
6+10	0.0193	0.07	Q V				
6+15	0.0198	0.07	Q V				
6+20	0.0203	0.07	Q V				
6+25	0.0207	0.07	Q V				
6+30	0.0212	0.07	Q V				
6+35	0.0217	0.07	Q V				
6+40	0.0222	0.07	Q V				
6+45	0.0227	0.07	Q V				
6+50	0.0232	0.07	Q V				
6+55	0.0237	0.07	Q V				
7+ 0	0.0242	0.07	Q V				
7+ 5	0.0247	0.07	Q V				
7+10	0.0253	0.07	Q V				
7+15	0.0258	0.07	Q V				
7+20	0.0263	0.08	Q V				
7+25	0.0269	0.08	Q V				
7+30	0.0274	0.08	Q V				
7+35	0.0280	0.09	Q V				
7+40	0.0286	0.09	Q V				
7+45	0.0293	0.09	Q V				
7+50	0.0299	0.09	Q V				
7+55	0.0306	0.10	Q V				
8+ 0	0.0312	0.10	Q V				
8+ 5	0.0320	0.11	Q V				
8+10	0.0327	0.11	Q V				
8+15	0.0335	0.11	Q V				
8+20	0.0343	0.11	Q V				
8+25	0.0350	0.11	Q V				
8+30	0.0358	0.11	Q V				
8+35	0.0366	0.12	Q V				
8+40	0.0374	0.12	Q V				
8+45	0.0382	0.12	Q V				
8+50	0.0391	0.12	Q V				
8+55	0.0400	0.13	Q V				

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9+ 0	0.0408	0.13	Q	V					
9+ 5	0.0418	0.14	Q	V					
9+10	0.0427	0.14	Q	V					
9+15	0.0437	0.14	Q	V					
9+20	0.0447	0.15	Q	V					
9+25	0.0457	0.15	Q	V					
9+30	0.0468	0.15	Q	V					
9+35	0.0478	0.15	Q	V					
9+40	0.0489	0.16	Q	V					
9+45	0.0500	0.16	Q	V					
9+50	0.0511	0.16	Q	V					
9+55	0.0522	0.16	Q	V					
10+ 0	0.0533	0.16	Q	V					
10+ 5	0.0542	0.13	Q	V					
10+10	0.0550	0.11	Q	V					
10+15	0.0557	0.11	Q	V					
10+20	0.0565	0.11	Q	V					
10+25	0.0573	0.11	Q	V					
10+30	0.0580	0.11	Q	V					
10+35	0.0590	0.14	Q	V					
10+40	0.0600	0.15	Q	V					
10+45	0.0610	0.15	Q	V					
10+50	0.0621	0.15	Q	V					
10+55	0.0631	0.15	Q	V					
11+ 0	0.0641	0.15	Q	V					
11+ 5	0.0651	0.14	Q	V					
11+10	0.0661	0.14	Q	V					
11+15	0.0670	0.14	Q	V					
11+20	0.0680	0.14	Q	V					
11+25	0.0690	0.14	Q	V					
11+30	0.0699	0.14	Q	V					
11+35	0.0709	0.13	Q	V					
11+40	0.0717	0.13	Q	V					
11+45	0.0726	0.13	Q	V					
11+50	0.0735	0.13	Q	V					
11+55	0.0744	0.13	Q	V					
12+ 0	0.0753	0.13	Q	V					
12+ 5	0.0765	0.17	Q	V					
12+10	0.0778	0.19	Q	V					
12+15	0.0791	0.19	Q	V					
12+20	0.0804	0.19	Q	V					
12+25	0.0817	0.19	Q	V					
12+30	0.0830	0.19	Q	V					
12+35	0.0844	0.20	Q	V					
12+40	0.0859	0.21	Q	V					
12+45	0.0873	0.21	Q	V					
12+50	0.0888	0.21	Q	V					
12+55	0.0902	0.22	Q	V					
13+ 0	0.0917	0.22	Q	V					
13+ 5	0.0935	0.25	Q	V					
13+10	0.0953	0.27	Q	V					
13+15	0.0972	0.27	Q	V					
13+20	0.0991	0.27	Q	V					
13+25	0.1010	0.28	Q	V					
13+30	0.1029	0.28	Q	V					
13+35	0.1043	0.21	Q	V					
13+40	0.1055	0.17	Q	V					
13+45	0.1067	0.17	Q	V					
13+50	0.1078	0.17	Q	V					
13+55	0.1090	0.17	Q	V					
14+ 0	0.1102	0.17	Q	V					
14+ 5	0.1115	0.19	Q	V					
14+10	0.1129	0.20	Q	V					
14+15	0.1143	0.20	Q	V					
14+20	0.1156	0.20	Q	V					
14+25	0.1169	0.19	Q	V					
14+30	0.1183	0.19	Q	V					
14+35	0.1196	0.19	Q	V					
14+40	0.1209	0.19	Q	V					
14+45	0.1223	0.19	Q	V					
14+50	0.1235	0.19	Q	V					
14+55	0.1248	0.19	Q	V					
15+ 0	0.1261	0.19	Q	V					
15+ 5	0.1273	0.18	Q	V					

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15+10	0.1286	0.18	Q				V	
15+15	0.1298	0.18	Q				V	
15+20	0.1310	0.17	Q				V	
15+25	0.1322	0.17	Q				V	
15+30	0.1333	0.17	Q				V	
15+35	0.1344	0.15	Q				V	
15+40	0.1354	0.14	Q				V	
15+45	0.1363	0.14	Q				V	
15+50	0.1373	0.14	Q				V	
15+55	0.1383	0.14	Q				V	
16+ 0	0.1392	0.14	Q				V	
16+ 5	0.1397	0.07	Q				V	
16+10	0.1399	0.03	Q				V	
16+15	0.1401	0.03	Q				V	
16+20	0.1403	0.03	Q				V	
16+25	0.1405	0.03	Q				V	
16+30	0.1407	0.03	Q				V	
16+35	0.1409	0.02	Q				V	
16+40	0.1410	0.02	Q				V	
16+45	0.1412	0.02	Q				V	
16+50	0.1413	0.02	Q				V	
16+55	0.1415	0.02	Q				V	
17+ 0	0.1417	0.02	Q				V	
17+ 5	0.1419	0.03	Q				V	
17+10	0.1421	0.04	Q				V	
17+15	0.1424	0.04	Q				V	
17+20	0.1426	0.04	Q				V	
17+25	0.1429	0.04	Q				V	
17+30	0.1432	0.04	Q				V	
17+35	0.1434	0.04	Q				V	
17+40	0.1437	0.04	Q				V	
17+45	0.1439	0.04	Q				V	
17+50	0.1441	0.03	Q				V	
17+55	0.1443	0.03	Q				V	
18+ 0	0.1446	0.03	Q				V	
18+ 5	0.1448	0.03	Q				V	
18+10	0.1450	0.03	Q				V	
18+15	0.1452	0.03	Q				V	
18+20	0.1454	0.03	Q				V	
18+25	0.1456	0.03	Q				V	
18+30	0.1458	0.03	Q				V	
18+35	0.1459	0.02	Q				V	
18+40	0.1461	0.02	Q				V	
18+45	0.1463	0.02	Q				V	
18+50	0.1464	0.02	Q				V	
18+55	0.1465	0.01	Q				V	
19+ 0	0.1466	0.01	Q				V	
19+ 5	0.1467	0.02	Q				V	
19+10	0.1469	0.02	Q				V	
19+15	0.1470	0.02	Q				V	
19+20	0.1472	0.03	Q				V	
19+25	0.1474	0.03	Q				V	
19+30	0.1476	0.03	Q				V	
19+35	0.1478	0.02	Q				V	
19+40	0.1479	0.02	Q				V	
19+45	0.1481	0.02	Q				V	
19+50	0.1482	0.02	Q				V	
19+55	0.1483	0.01	Q				V	
20+ 0	0.1484	0.01	Q				V	
20+ 5	0.1486	0.02	Q				V	
20+10	0.1487	0.02	Q				V	
20+15	0.1489	0.02	Q				V	
20+20	0.1490	0.02	Q				V	
20+25	0.1492	0.02	Q				V	
20+30	0.1493	0.02	Q				V	
20+35	0.1495	0.02	Q				V	
20+40	0.1496	0.02	Q				V	
20+45	0.1498	0.02	Q				V	
20+50	0.1499	0.02	Q				V	
20+55	0.1500	0.01	Q				V	
21+ 0	0.1501	0.01	Q				V	
21+ 5	0.1502	0.02	Q				V	
21+10	0.1504	0.02	Q				V	
21+15	0.1506	0.02	Q				V	

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

21+20	0.1507	0.02	Q					V
21+25	0.1508	0.01	Q					V
21+30	0.1509	0.01	Q					V
21+35	0.1510	0.02	Q					V
21+40	0.1512	0.02	Q					V
21+45	0.1513	0.02	Q					V
21+50	0.1514	0.02	Q					V
21+55	0.1515	0.01	Q					V
22+ 0	0.1516	0.01	Q					V
22+ 5	0.1518	0.02	Q					V
22+10	0.1519	0.02	Q					V
22+15	0.1521	0.02	Q					V
22+20	0.1522	0.02	Q					V
22+25	0.1523	0.01	Q					V
22+30	0.1524	0.01	Q					V
22+35	0.1525	0.01	Q					V
22+40	0.1526	0.01	Q					V
22+45	0.1527	0.01	Q					V
22+50	0.1528	0.01	Q					V
22+55	0.1529	0.01	Q					V
23+ 0	0.1530	0.01	Q					V
23+ 5	0.1531	0.01	Q					V
23+10	0.1532	0.01	Q					V
23+15	0.1533	0.01	Q					V
23+20	0.1534	0.01	Q					V
23+25	0.1535	0.01	Q					V
23+30	0.1536	0.01	Q					V
23+35	0.1537	0.01	Q					V
23+40	0.1538	0.01	Q					V
23+45	0.1539	0.01	Q					V
23+50	0.1540	0.01	Q					V
23+55	0.1541	0.01	Q					V
24+ 0	0.1543	0.01	Q					V
24+ 5	0.1543	0.00	Q					V

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

- **Area 'A' – 100 Year 1 Hour Pre-Development Condition – Unit Hydrograph**

Unit Hydrograph Analysis

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 Study date 07/23/20 File: ex1001100.out

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Riverside County Synthetic Unit Hydrology Method
 RCFC & WCD Manual date - April 1978

Program License Serial Number 6407

English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

English Units used in output format

 FARM MARKET EXPANSION
 EXISTING CONDITION UNIT HYDROGRAPH - 100 YEAR 1 HOUR STORM
 WMB & ASSOCIATES, JULY 2020
 BY: BRIAN LOWELL, PE

 Drainage Area = 1.63(Ac.) = 0.003 Sq. Mi.
 Drainage Area for Depth-Area Areal Adjustment = 1.63(Ac.) = 0.003 Sq. Mi.
 Length along longest watercourse = 355.00(Ft.)
 Length along longest watercourse measured to centroid = 169.00(Ft.)
 Length along longest watercourse = 0.067 Mi.
 Length along longest watercourse measured to centroid = 0.032 Mi.
 Difference in elevation = 7.90(Ft.)
 Slope along watercourse = 117.4986 Ft./Mi.
 Average Manning's 'N' = 0.020
 Lag time = 0.019 Hr.
 Lag time = 1.13 Min.
 25% of lag time = 0.28 Min.
 40% of lag time = 0.45 Min.
 Unit time = 5.00 Min.
 Duration of storm = 1 Hour(s)
 User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall(In) [2]	Weighting[1*2]
1.63	0.50	0.81

100 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall(In) [2]	Weighting[1*2]
1.63	1.20	1.96

STORM EVENT (YEAR) = 100.00
 Area Averaged 2-Year Rainfall = 0.500(In)
 Area Averaged 100-Year Rainfall = 1.200(In)

Point rain (area averaged) = 1.200(In)
 Areal adjustment factor = 100.00 %
 Adjusted average point rain = 1.200(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
1.630	67.30	0.360
Total Area Entered = 1.63(Ac.)		

RI	RI	Infil. Rate	Impervious	Adj. Infil. Rate	Area%	F
AMC2	AMC-3	(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
67.3	83.4	0.205	0.360	0.139	1.000	0.139
Sum (F) =						0.139

Area averaged mean soil loss (F) (In/Hr) = 0.139

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

- **Area 'A' – 100 Year 3 Hour Pre-Development Condition – Unit Hydrograph**

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
 Study date 07/23/20 File: ex1003100.out

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Riverside County Synthetic Unit Hydrology Method
 RCFC & WCD Manual date - April 1978

Program License Serial Number 6407

English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

English Units used in output format

FARM MARKET EXPANSION
 EXISTING CONDITION UNIT HYDROGRAPH - 100 YEAR 3 HOUR STORM
 WMB & ASSOCIATES, JULY 2020
 BY: BRIAN LOWELL, PE

 Drainage Area = 1.63(Ac.) = 0.003 Sq. Mi.
 Drainage Area for Depth-Area Areal Adjustment = 1.63(Ac.) = 0.003 Sq. Mi.
 Length along longest watercourse = 355.00(Ft.)
 Length along longest watercourse measured to centroid = 169.00(Ft.)
 Length along longest watercourse = 0.067 Mi.
 Length along longest watercourse measured to centroid = 0.032 Mi.
 Difference in elevation = 7.90(Ft.)
 Slope along watercourse = 117.4986 Ft./Mi.
 Average Manning's 'N' = 0.020
 Lag time = 0.019 Hr.
 Lag time = 1.13 Min.
 25% of lag time = 0.28 Min.
 40% of lag time = 0.45 Min.
 Unit time = 5.00 Min.
 Duration of storm = 3 Hour(s)
 User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall(In) [2]	Weighting[1*2]
1.63	0.80	1.30

100 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall(In) [2]	Weighting[1*2]
1.63	1.80	2.93

STORM EVENT (YEAR) = 100.00
 Area Averaged 2-Year Rainfall = 0.800(In)
 Area Averaged 100-Year Rainfall = 1.800(In)

Point rain (area averaged) = 1.800(In)
 Areal adjustment factor = 100.00 %
 Adjusted average point rain = 1.800(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
1.630	67.30	0.360
Total Area Entered = 1.63(Ac.)		

RI RI Infil. Rate Impervious Adj. Infil. Rate Area% F

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

AMC2 AMC-3 (In/Hr) (Dec.%) (In/Hr) (Dec.) (In/Hr)
 67.3 83.4 0.205 0.360 0.139 1.000 0.139
 Sum (F) = 0.139

Area averaged mean soil loss (F) (In/Hr) = 0.139
 Minimum soil loss rate ((In/Hr)) = 0.069
 (for 24 hour storm duration)
 Soil loss rate (decimal) = 0.612

Unit Hydrograph
 VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	442.998	67.832
2	0.167	885.996	32.168
		Sum = 100.000	Sum = 1.643

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max Low	Effective (In/Hr)
1	0.08	1.30	0.281 (0.139)	0.142
2	0.17	1.30	0.281 (0.139)	0.142
3	0.25	1.10	0.238 (0.145)	0.099
4	0.33	1.50	0.324 (0.198)	0.185
5	0.42	1.50	0.324 (0.198)	0.185
6	0.50	1.80	0.389 (0.238)	0.250
7	0.58	1.50	0.324 (0.198)	0.185
8	0.67	1.80	0.389 (0.238)	0.250
9	0.75	1.80	0.389 (0.238)	0.250
10	0.83	1.50	0.324 (0.198)	0.185
11	0.92	1.60	0.346 (0.212)	0.207
12	1.00	1.80	0.389 (0.238)	0.250
13	1.08	2.20	0.475 (0.291)	0.336
14	1.17	2.20	0.475 (0.291)	0.336
15	1.25	2.20	0.475 (0.291)	0.336
16	1.33	2.00	0.432 (0.264)	0.293
17	1.42	2.60	0.562 (0.344)	0.423
18	1.50	2.70	0.583 (0.357)	0.444
19	1.58	2.40	0.518 (0.317)	0.379
20	1.67	2.70	0.583 (0.357)	0.444
21	1.75	3.30	0.713 (0.436)	0.574
22	1.83	3.10	0.670 (0.410)	0.531
23	1.92	2.90	0.626 (0.383)	0.487
24	2.00	3.00	0.648 (0.397)	0.509
25	2.08	3.10	0.670 (0.410)	0.531
26	2.17	4.20	0.907 (0.555)	0.768
27	2.25	5.00	1.080 (0.661)	0.941
28	2.33	3.50	0.756 (0.463)	0.617
29	2.42	6.80	1.469 (0.899)	1.330
30	2.50	7.30	1.577 (0.965)	1.438
31	2.58	8.20	1.771 (1.084)	1.632
32	2.67	5.90	1.274 (0.780)	1.135
33	2.75	2.00	0.432 (0.264)	0.293
34	2.83	1.80	0.389 (0.238)	0.250
35	2.92	1.80	0.389 (0.238)	0.250
36	3.00	0.60	0.130 (0.139)	0.050

Sum = 100.0 (Loss Rate Not Used) Sum = 16.7
 Flood volume = Effective rainfall 1.39(In)
 times area 1.6(Ac.) / [(In) / (Ft.)] = 0.2 (Ac.Ft)
 Total soil loss = 0.41 (In)
 Total soil loss = 0.056 (Ac.Ft)
 Total rainfall = 1.80 (In)
 Flood volume = 8214.2 Cubic Feet
 Total soil loss = 2436.1 Cubic Feet

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Peak flow rate of this hydrograph = 2.580 (CFS)

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3 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time (h+m)	Volume Ac.Ft	Q (CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0011	0.16	Q				
0+10	0.0027	0.23	Q				
0+15	0.0040	0.19	Q				
0+20	0.0058	0.26	Q				
0+25	0.0078	0.30	Q				
0+30	0.0104	0.38	QV				
0+35	0.0128	0.34	QV				
0+40	0.0154	0.38	Q V				
0+45	0.0182	0.41	Q V				
0+50	0.0205	0.34	Q V				
0+55	0.0228	0.33	Q V				
1+ 0	0.0255	0.39	Q V				
1+ 5	0.0289	0.51	Q V				
1+10	0.0328	0.55	Q V				
1+15	0.0366	0.55	Q V				
1+20	0.0400	0.50	Q V				
1+25	0.0443	0.63	Q V				
1+30	0.0493	0.72	Q V				
1+35	0.0538	0.66	Q V				
1+40	0.0586	0.70	Q V				
1+45	0.0646	0.87	Q V				
1+50	0.0708	0.90	Q V				
1+55	0.0765	0.82	Q V				
2+ 0	0.0822	0.83	Q V				
2+ 5	0.0881	0.86	Q V				
2+10	0.0959	1.14	Q V				
2+15	0.1060	1.46	Q V				
2+20	0.1141	1.19	Q V				
2+25	0.1266	1.81	Q V				
2+30	0.1425	2.31	Q V				
2+35	0.1602	2.58	Q V				
2+40	0.1749	2.13	Q V				
2+45	0.1813	0.93	Q V				
2+50	0.1843	0.43	Q V				
2+55	0.1871	0.41	Q V				
3+ 0	0.1884	0.19	Q V				
3+ 5	0.1886	0.03	Q V				

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

- **Area 'A' – 100 Year 6 Hour Pre-Development Condition – Unit Hydrograph**

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
 Study date 07/23/20 File: ex1006100.out

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Riverside County Synthetic Unit Hydrology Method
 RCFC & WCD Manual date - April 1978

Program License Serial Number 6407

English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

English Units used in output format

FARM MARKET EXPANSION
 EXISTING CONDITION UNIT HYDROGRAPH - 100 YEAR 6 HOUR STORM
 WMB & ASSOCIATES, JULY 2020
 BY: BRIAN LOWELL, PE

 Drainage Area = 1.63(Ac.) = 0.003 Sq. Mi.
 Drainage Area for Depth-Area Areal Adjustment = 1.63(Ac.) = 0.003 Sq. Mi.
 Length along longest watercourse = 355.00(Ft.)
 Length along longest watercourse measured to centroid = 169.00(Ft.)
 Length along longest watercourse = 0.067 Mi.
 Length along longest watercourse measured to centroid = 0.032 Mi.
 Difference in elevation = 7.90(Ft.)
 Slope along watercourse = 117.4986 Ft./Mi.
 Average Manning's 'N' = 0.020
 Lag time = 0.019 Hr.
 Lag time = 1.13 Min.
 25% of lag time = 0.28 Min.
 40% of lag time = 0.45 Min.
 Unit time = 5.00 Min.
 Duration of storm = 6 Hour(s)
 User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall(In) [2]	Weighting[1*2]
1.63	1.20	1.96

100 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall(In) [2]	Weighting[1*2]
1.63	2.50	4.07

STORM EVENT (YEAR) = 100.00
 Area Averaged 2-Year Rainfall = 1.200(In)
 Area Averaged 100-Year Rainfall = 2.500(In)

Point rain (area averaged) = 2.500(In)
 Areal adjustment factor = 100.00 %
 Adjusted average point rain = 2.500(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
1.630	67.30	0.360
Total Area Entered = 1.63(Ac.)		

RI RI Infil. Rate Impervious Adj. Infil. Rate Area% F

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

AMC2	AMC-3	(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
67.3	83.4	0.205	0.360	0.139	1.000	0.139
					Sum (F) =	0.139

Area averaged mean soil loss (F) (In/Hr) = 0.139
 Minimum soil loss rate ((In/Hr)) = 0.069
 (for 24 hour storm duration)
 Soil loss rate (decimal) = 0.612

Unit Hydrograph
 VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	442.998	67.832
2	0.167	885.996	32.168
		Sum = 100.000	Sum= 1.643

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr)		Effective (In/Hr)
				Max	Low	
1	0.08	0.50	0.150	(0.139)	0.092	0.058
2	0.17	0.60	0.180	(0.139)	0.110	0.070
3	0.25	0.60	0.180	(0.139)	0.110	0.070
4	0.33	0.60	0.180	(0.139)	0.110	0.070
5	0.42	0.60	0.180	(0.139)	0.110	0.070
6	0.50	0.70	0.210	(0.139)	0.129	0.081
7	0.58	0.70	0.210	(0.139)	0.129	0.081
8	0.67	0.70	0.210	(0.139)	0.129	0.081
9	0.75	0.70	0.210	(0.139)	0.129	0.081
10	0.83	0.70	0.210	(0.139)	0.129	0.081
11	0.92	0.70	0.210	(0.139)	0.129	0.081
12	1.00	0.80	0.240	0.139	(0.147)	0.101
13	1.08	0.80	0.240	0.139	(0.147)	0.101
14	1.17	0.80	0.240	0.139	(0.147)	0.101
15	1.25	0.80	0.240	0.139	(0.147)	0.101
16	1.33	0.80	0.240	0.139	(0.147)	0.101
17	1.42	0.80	0.240	0.139	(0.147)	0.101
18	1.50	0.80	0.240	0.139	(0.147)	0.101
19	1.58	0.80	0.240	0.139	(0.147)	0.101
20	1.67	0.80	0.240	0.139	(0.147)	0.101
21	1.75	0.80	0.240	0.139	(0.147)	0.101
22	1.83	0.80	0.240	0.139	(0.147)	0.101
23	1.92	0.80	0.240	0.139	(0.147)	0.101
24	2.00	0.90	0.270	0.139	(0.165)	0.131
25	2.08	0.80	0.240	0.139	(0.147)	0.101
26	2.17	0.90	0.270	0.139	(0.165)	0.131
27	2.25	0.90	0.270	0.139	(0.165)	0.131
28	2.33	0.90	0.270	0.139	(0.165)	0.131
29	2.42	0.90	0.270	0.139	(0.165)	0.131
30	2.50	0.90	0.270	0.139	(0.165)	0.131
31	2.58	0.90	0.270	0.139	(0.165)	0.131
32	2.67	0.90	0.270	0.139	(0.165)	0.131
33	2.75	1.00	0.300	0.139	(0.184)	0.161
34	2.83	1.00	0.300	0.139	(0.184)	0.161
35	2.92	1.00	0.300	0.139	(0.184)	0.161
36	3.00	1.00	0.300	0.139	(0.184)	0.161
37	3.08	1.00	0.300	0.139	(0.184)	0.161
38	3.17	1.10	0.330	0.139	(0.202)	0.191
39	3.25	1.10	0.330	0.139	(0.202)	0.191
40	3.33	1.10	0.330	0.139	(0.202)	0.191
41	3.42	1.20	0.360	0.139	(0.220)	0.221
42	3.50	1.30	0.390	0.139	(0.239)	0.251
43	3.58	1.40	0.420	0.139	(0.257)	0.281
44	3.67	1.40	0.420	0.139	(0.257)	0.281
45	3.75	1.50	0.450	0.139	(0.275)	0.311
46	3.83	1.50	0.450	0.139	(0.275)	0.311

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Moreno Valley Farm Market Expansion – Preliminary Hydrology Study

Section 3

47	3.92	1.60	0.480	0.139	(0.294)	0.341
48	4.00	1.60	0.480	0.139	(0.294)	0.341
49	4.08	1.70	0.510	0.139	(0.312)	0.371
50	4.17	1.80	0.540	0.139	(0.330)	0.401
51	4.25	1.90	0.570	0.139	(0.349)	0.431
52	4.33	2.00	0.600	0.139	(0.367)	0.461
53	4.42	2.10	0.630	0.139	(0.386)	0.491
54	4.50	2.10	0.630	0.139	(0.386)	0.491
55	4.58	2.20	0.660	0.139	(0.404)	0.521
56	4.67	2.30	0.690	0.139	(0.422)	0.551
57	4.75	2.40	0.720	0.139	(0.441)	0.581
58	4.83	2.40	0.720	0.139	(0.441)	0.581
59	4.92	2.50	0.750	0.139	(0.459)	0.611
60	5.00	2.60	0.780	0.139	(0.477)	0.641
61	5.08	3.10	0.930	0.139	(0.569)	0.791
62	5.17	3.60	1.080	0.139	(0.661)	0.941
63	5.25	3.90	1.170	0.139	(0.716)	1.031
64	5.33	4.20	1.260	0.139	(0.771)	1.121
65	5.42	4.70	1.410	0.139	(0.863)	1.271
66	5.50	5.60	1.680	0.139	(1.028)	1.541
67	5.58	1.90	0.570	0.139	(0.349)	0.431
68	5.67	0.90	0.270	0.139	(0.165)	0.131
69	5.75	0.60	0.180	(0.139)	0.110	0.070
70	5.83	0.50	0.150	(0.139)	0.092	0.058
71	5.92	0.30	0.090	(0.139)	0.055	0.035
72	6.00	0.20	0.060	(0.139)	0.037	0.023

(Loss Rate Not Used)

Sum = 100.0 Sum = 20.5

Flood volume = Effective rainfall 1.71 (In)
 times area 1.6 (Ac.) / [(In)/(Ft.)] = 0.2 (Ac.Ft)
 Total soil loss = 0.79 (In)
 Total soil loss = 0.108 (Ac.Ft)
 Total rainfall = 2.50 (In)
 Flood volume = 10100.9 Cubic Feet
 Total soil loss = 4691.3 Cubic Feet

 Peak flow rate of this hydrograph = 2.390 (CFS)

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 6 - H O U R S T O R M
 R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time (h+m)	Volume Ac.Ft	Q (CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0004	0.06	Q				
0+10	0.0012	0.11	Q				
0+15	0.0020	0.11	Q				
0+20	0.0028	0.11	Q				
0+25	0.0036	0.11	Q				
0+30	0.0044	0.13	Q				
0+35	0.0054	0.13	Q				
0+40	0.0063	0.13	QV				
0+45	0.0072	0.13	QV				
0+50	0.0081	0.13	QV				
0+55	0.0091	0.13	QV				
1+ 0	0.0101	0.16	QV				
1+ 5	0.0113	0.17	QV				
1+10	0.0124	0.17	Q V				
1+15	0.0136	0.17	Q V				
1+20	0.0147	0.17	Q V				
1+25	0.0159	0.17	Q V				
1+30	0.0170	0.17	Q V				
1+35	0.0181	0.17	Q V				
1+40	0.0193	0.17	Q V				
1+45	0.0204	0.17	Q V				
1+50	0.0216	0.17	Q V				
1+55	0.0227	0.17	Q V				
2+ 0	0.0241	0.20	Q V				
2+ 5	0.0253	0.18	Q V				
2+10	0.0267	0.20	Q V				
2+15	0.0282	0.22	Q V				

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2+20	0.0297	0.22	Q	V						
2+25	0.0312	0.22	Q	V						
2+30	0.0327	0.22	Q	V						
2+35	0.0341	0.22	Q	V						
2+40	0.0356	0.22	Q	V						
2+45	0.0373	0.25	Q	V						
2+50	0.0392	0.26	Q	V						
2+55	0.0410	0.26	Q	V						
3+ 0	0.0428	0.26	Q	V						
3+ 5	0.0446	0.26	Q	V						
3+10	0.0467	0.30	Q	V						
3+15	0.0489	0.31	Q	V						
3+20	0.0510	0.31	Q	V						
3+25	0.0534	0.35	Q	V						
3+30	0.0561	0.40	Q	V						
3+35	0.0592	0.45	Q	V						
3+40	0.0624	0.46	Q	V						
3+45	0.0658	0.50	Q	V						
3+50	0.0693	0.51	Q	V						
3+55	0.0731	0.54	Q	V						
4+ 0	0.0769	0.56	Q	V						
4+ 5	0.0810	0.59	Q	V						
4+10	0.0855	0.64	Q	V						
4+15	0.0902	0.69	Q	V						
4+20	0.0953	0.74	Q	V						
4+25	0.1008	0.79	Q	V						
4+30	0.1064	0.81	Q	V						
4+35	0.1121	0.84	Q	V						
4+40	0.1183	0.89	Q	V						
4+45	0.1247	0.94	Q	V						
4+50	0.1313	0.96	Q	V						
4+55	0.1381	0.99	Q	V						
5+ 0	0.1453	1.04	Q	V						
5+ 5	0.1537	1.22	Q	V						
5+10	0.1638	1.47	Q	V						
5+15	0.1751	1.65	Q	V						
5+20	0.1875	1.80	Q	V						
5+25	0.2013	2.01	Q	V						
5+30	0.2178	2.39	Q	V						
5+35	0.2267	1.30	Q	V						V
5+40	0.2293	0.37	Q	V						V
5+45	0.2303	0.15	Q	V						V
5+50	0.2310	0.10	Q	V						V
5+55	0.2315	0.07	Q	V						V
6+ 0	0.2318	0.04	Q	V						V
6+ 5	0.2319	0.01	Q	V						V

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- **Area 'A' – 100 Year 24 Hour Pre-Development Condition – Unit Hydrograph**

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Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
 Study date 07/23/20 File: ex10024100.out

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Riverside County Synthetic Unit Hydrology Method
 RCFC & WCD Manual date - April 1978

Program License Serial Number 6407

English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

English Units used in output format

FARM MARKET EXPANSION
 EXISTING CONDITION UNIT HYDROGRAPH - 100 YEAR 24 HOUR STORM
 WMB & ASSOCIATES, JULY 2020
 BY: BRIAN LOWELL, PE

Drainage Area = 1.63(Ac.) = 0.003 Sq. Mi.
 Drainage Area for Depth-Area Areal Adjustment = 1.63(Ac.) = 0.003 Sq. Mi.
 Length along longest watercourse = 355.00(Ft.)
 Length along longest watercourse measured to centroid = 169.00(Ft.)
 Length along longest watercourse = 0.067 Mi.
 Length along longest watercourse measured to centroid = 0.032 Mi.
 Difference in elevation = 7.90(Ft.)
 Slope along watercourse = 117.4986 Ft./Mi.
 Average Manning's 'N' = 0.020
 Lag time = 0.019 Hr.
 Lag time = 1.13 Min.
 25% of lag time = 0.28 Min.
 40% of lag time = 0.45 Min.
 Unit time = 5.00 Min.
 Duration of storm = 24 Hour(s)
 User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall(In) [2]	Weighting[1*2]
1.63	1.80	2.93

100 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall(In) [2]	Weighting[1*2]
1.63	4.50	7.33

STORM EVENT (YEAR) = 100.00
 Area Averaged 2-Year Rainfall = 1.800(In)
 Area Averaged 100-Year Rainfall = 4.500(In)

Point rain (area averaged) = 4.500(In)
 Areal adjustment factor = 100.00 %
 Adjusted average point rain = 4.500(In)

Sub-Area Data:
 Area(Ac.) Runoff Index Impervious %
 1.630 67.30 0.360
 Total Area Entered = 1.63(Ac.)

RI RI Infil. Rate Impervious Adj. Infil. Rate Area% F

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AMC2	AMC-3	(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
67.3	83.4	0.205	0.360	0.139	1.000	0.139
					Sum (F) =	0.139

Area averaged mean soil loss (F) (In/Hr) = 0.139
 Minimum soil loss rate ((In/Hr)) = 0.069
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.612

Unit Hydrograph
 VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	442.998	67.832
2	0.167	885.996	32.168
		Sum = 100.000	Sum= 1.643

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr)		Effective (In/Hr)
				Max	Low	
1	0.08	0.07	0.036	(0.246)	0.022	0.014
2	0.17	0.07	0.036	(0.245)	0.022	0.014
3	0.25	0.07	0.036	(0.244)	0.022	0.014
4	0.33	0.10	0.054	(0.243)	0.033	0.021
5	0.42	0.10	0.054	(0.242)	0.033	0.021
6	0.50	0.10	0.054	(0.241)	0.033	0.021
7	0.58	0.10	0.054	(0.241)	0.033	0.021
8	0.67	0.10	0.054	(0.240)	0.033	0.021
9	0.75	0.10	0.054	(0.239)	0.033	0.021
10	0.83	0.13	0.072	(0.238)	0.044	0.028
11	0.92	0.13	0.072	(0.237)	0.044	0.028
12	1.00	0.13	0.072	(0.236)	0.044	0.028
13	1.08	0.10	0.054	(0.235)	0.033	0.021
14	1.17	0.10	0.054	(0.234)	0.033	0.021
15	1.25	0.10	0.054	(0.233)	0.033	0.021
16	1.33	0.10	0.054	(0.232)	0.033	0.021
17	1.42	0.10	0.054	(0.231)	0.033	0.021
18	1.50	0.10	0.054	(0.230)	0.033	0.021
19	1.58	0.10	0.054	(0.229)	0.033	0.021
20	1.67	0.10	0.054	(0.228)	0.033	0.021
21	1.75	0.10	0.054	(0.228)	0.033	0.021
22	1.83	0.13	0.072	(0.227)	0.044	0.028
23	1.92	0.13	0.072	(0.226)	0.044	0.028
24	2.00	0.13	0.072	(0.225)	0.044	0.028
25	2.08	0.13	0.072	(0.224)	0.044	0.028
26	2.17	0.13	0.072	(0.223)	0.044	0.028
27	2.25	0.13	0.072	(0.222)	0.044	0.028
28	2.33	0.13	0.072	(0.221)	0.044	0.028
29	2.42	0.13	0.072	(0.220)	0.044	0.028
30	2.50	0.13	0.072	(0.219)	0.044	0.028
31	2.58	0.17	0.090	(0.218)	0.055	0.035
32	2.67	0.17	0.090	(0.218)	0.055	0.035
33	2.75	0.17	0.090	(0.217)	0.055	0.035
34	2.83	0.17	0.090	(0.216)	0.055	0.035
35	2.92	0.17	0.090	(0.215)	0.055	0.035
36	3.00	0.17	0.090	(0.214)	0.055	0.035
37	3.08	0.17	0.090	(0.213)	0.055	0.035
38	3.17	0.17	0.090	(0.212)	0.055	0.035
39	3.25	0.17	0.090	(0.211)	0.055	0.035
40	3.33	0.17	0.090	(0.210)	0.055	0.035
41	3.42	0.17	0.090	(0.210)	0.055	0.035
42	3.50	0.17	0.090	(0.209)	0.055	0.035
43	3.58	0.17	0.090	(0.208)	0.055	0.035
44	3.67	0.17	0.090	(0.207)	0.055	0.035
45	3.75	0.17	0.090	(0.206)	0.055	0.035
46	3.83	0.20	0.108	(0.205)	0.066	0.042

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47	3.92	0.20	0.108	(0.204)	0.066	0.042
48	4.00	0.20	0.108	(0.203)	0.066	0.042
49	4.08	0.20	0.108	(0.203)	0.066	0.042
50	4.17	0.20	0.108	(0.202)	0.066	0.042
51	4.25	0.20	0.108	(0.201)	0.066	0.042
52	4.33	0.23	0.126	(0.200)	0.077	0.049
53	4.42	0.23	0.126	(0.199)	0.077	0.049
54	4.50	0.23	0.126	(0.198)	0.077	0.049
55	4.58	0.23	0.126	(0.197)	0.077	0.049
56	4.67	0.23	0.126	(0.197)	0.077	0.049
57	4.75	0.23	0.126	(0.196)	0.077	0.049
58	4.83	0.27	0.144	(0.195)	0.088	0.056
59	4.92	0.27	0.144	(0.194)	0.088	0.056
60	5.00	0.27	0.144	(0.193)	0.088	0.056
61	5.08	0.20	0.108	(0.192)	0.066	0.042
62	5.17	0.20	0.108	(0.192)	0.066	0.042
63	5.25	0.20	0.108	(0.191)	0.066	0.042
64	5.33	0.23	0.126	(0.190)	0.077	0.049
65	5.42	0.23	0.126	(0.189)	0.077	0.049
66	5.50	0.23	0.126	(0.188)	0.077	0.049
67	5.58	0.27	0.144	(0.187)	0.088	0.056
68	5.67	0.27	0.144	(0.187)	0.088	0.056
69	5.75	0.27	0.144	(0.186)	0.088	0.056
70	5.83	0.27	0.144	(0.185)	0.088	0.056
71	5.92	0.27	0.144	(0.184)	0.088	0.056
72	6.00	0.27	0.144	(0.183)	0.088	0.056
73	6.08	0.30	0.162	(0.183)	0.099	0.063
74	6.17	0.30	0.162	(0.182)	0.099	0.063
75	6.25	0.30	0.162	(0.181)	0.099	0.063
76	6.33	0.30	0.162	(0.180)	0.099	0.063
77	6.42	0.30	0.162	(0.179)	0.099	0.063
78	6.50	0.30	0.162	(0.178)	0.099	0.063
79	6.58	0.33	0.180	(0.178)	0.110	0.070
80	6.67	0.33	0.180	(0.177)	0.110	0.070
81	6.75	0.33	0.180	(0.176)	0.110	0.070
82	6.83	0.33	0.180	(0.175)	0.110	0.070
83	6.92	0.33	0.180	(0.174)	0.110	0.070
84	7.00	0.33	0.180	(0.174)	0.110	0.070
85	7.08	0.33	0.180	(0.173)	0.110	0.070
86	7.17	0.33	0.180	(0.172)	0.110	0.070
87	7.25	0.33	0.180	(0.171)	0.110	0.070
88	7.33	0.37	0.198	(0.171)	0.121	0.077
89	7.42	0.37	0.198	(0.170)	0.121	0.077
90	7.50	0.37	0.198	(0.169)	0.121	0.077
91	7.58	0.40	0.216	(0.168)	0.132	0.084
92	7.67	0.40	0.216	(0.167)	0.132	0.084
93	7.75	0.40	0.216	(0.167)	0.132	0.084
94	7.83	0.43	0.234	(0.166)	0.143	0.091
95	7.92	0.43	0.234	(0.165)	0.143	0.091
96	8.00	0.43	0.234	(0.164)	0.143	0.091
97	8.08	0.50	0.270	0.164	(0.165)	0.106
98	8.17	0.50	0.270	0.163	(0.165)	0.107
99	8.25	0.50	0.270	0.162	(0.165)	0.108
100	8.33	0.50	0.270	0.161	(0.165)	0.109
101	8.42	0.50	0.270	0.161	(0.165)	0.109
102	8.50	0.50	0.270	0.160	(0.165)	0.110
103	8.58	0.53	0.288	0.159	(0.176)	0.129
104	8.67	0.53	0.288	0.158	(0.176)	0.130
105	8.75	0.53	0.288	0.158	(0.176)	0.130
106	8.83	0.57	0.306	0.157	(0.187)	0.149
107	8.92	0.57	0.306	0.156	(0.187)	0.150
108	9.00	0.57	0.306	0.155	(0.187)	0.151
109	9.08	0.63	0.342	0.155	(0.209)	0.187
110	9.17	0.63	0.342	0.154	(0.209)	0.188
111	9.25	0.63	0.342	0.153	(0.209)	0.189
112	9.33	0.67	0.360	0.152	(0.220)	0.208
113	9.42	0.67	0.360	0.152	(0.220)	0.208
114	9.50	0.67	0.360	0.151	(0.220)	0.209
115	9.58	0.70	0.378	0.150	(0.231)	0.228
116	9.67	0.70	0.378	0.150	(0.231)	0.228
117	9.75	0.70	0.378	0.149	(0.231)	0.229
118	9.83	0.73	0.396	0.148	(0.242)	0.248
119	9.92	0.73	0.396	0.147	(0.242)	0.249
120	10.00	0.73	0.396	0.147	(0.242)	0.249

121	10.08	0.50	0.270	0.146	(0.165)	0.124
122	10.17	0.50	0.270	0.145	(0.165)	0.125
123	10.25	0.50	0.270	0.145	(0.165)	0.125
124	10.33	0.50	0.270	0.144	(0.165)	0.126
125	10.42	0.50	0.270	0.143	(0.165)	0.127
126	10.50	0.50	0.270	0.142	(0.165)	0.128
127	10.58	0.67	0.360	0.142	(0.220)	0.218
128	10.67	0.67	0.360	0.141	(0.220)	0.219
129	10.75	0.67	0.360	0.140	(0.220)	0.220
130	10.83	0.67	0.360	0.140	(0.220)	0.220
131	10.92	0.67	0.360	0.139	(0.220)	0.221
132	11.00	0.67	0.360	0.138	(0.220)	0.222
133	11.08	0.63	0.342	0.138	(0.209)	0.204
134	11.17	0.63	0.342	0.137	(0.209)	0.205
135	11.25	0.63	0.342	0.136	(0.209)	0.206
136	11.33	0.63	0.342	0.136	(0.209)	0.206
137	11.42	0.63	0.342	0.135	(0.209)	0.207
138	11.50	0.63	0.342	0.134	(0.209)	0.208
139	11.58	0.57	0.306	0.134	(0.187)	0.172
140	11.67	0.57	0.306	0.133	(0.187)	0.173
141	11.75	0.57	0.306	0.132	(0.187)	0.174
142	11.83	0.60	0.324	0.132	(0.198)	0.192
143	11.92	0.60	0.324	0.131	(0.198)	0.193
144	12.00	0.60	0.324	0.130	(0.198)	0.194
145	12.08	0.83	0.450	0.130	(0.275)	0.320
146	12.17	0.83	0.450	0.129	(0.275)	0.321
147	12.25	0.83	0.450	0.128	(0.275)	0.322
148	12.33	0.87	0.468	0.128	(0.286)	0.340
149	12.42	0.87	0.468	0.127	(0.286)	0.341
150	12.50	0.87	0.468	0.126	(0.286)	0.342
151	12.58	0.93	0.504	0.126	(0.308)	0.378
152	12.67	0.93	0.504	0.125	(0.308)	0.379
153	12.75	0.93	0.504	0.125	(0.308)	0.379
154	12.83	0.97	0.522	0.124	(0.319)	0.398
155	12.92	0.97	0.522	0.123	(0.319)	0.399
156	13.00	0.97	0.522	0.123	(0.319)	0.399
157	13.08	1.13	0.612	0.122	(0.375)	0.490
158	13.17	1.13	0.612	0.121	(0.375)	0.491
159	13.25	1.13	0.612	0.121	(0.375)	0.491
160	13.33	1.13	0.612	0.120	(0.375)	0.492
161	13.42	1.13	0.612	0.120	(0.375)	0.492
162	13.50	1.13	0.612	0.119	(0.375)	0.493
163	13.58	0.77	0.414	0.118	(0.253)	0.296
164	13.67	0.77	0.414	0.118	(0.253)	0.296
165	13.75	0.77	0.414	0.117	(0.253)	0.297
166	13.83	0.77	0.414	0.117	(0.253)	0.297
167	13.92	0.77	0.414	0.116	(0.253)	0.298
168	14.00	0.77	0.414	0.115	(0.253)	0.299
169	14.08	0.90	0.486	0.115	(0.297)	0.371
170	14.17	0.90	0.486	0.114	(0.297)	0.372
171	14.25	0.90	0.486	0.114	(0.297)	0.372
172	14.33	0.87	0.468	0.113	(0.286)	0.355
173	14.42	0.87	0.468	0.112	(0.286)	0.356
174	14.50	0.87	0.468	0.112	(0.286)	0.356
175	14.58	0.87	0.468	0.111	(0.286)	0.357
176	14.67	0.87	0.468	0.111	(0.286)	0.357
177	14.75	0.87	0.468	0.110	(0.286)	0.358
178	14.83	0.83	0.450	0.110	(0.275)	0.340
179	14.92	0.83	0.450	0.109	(0.275)	0.341
180	15.00	0.83	0.450	0.108	(0.275)	0.342
181	15.08	0.80	0.432	0.108	(0.264)	0.324
182	15.17	0.80	0.432	0.107	(0.264)	0.325
183	15.25	0.80	0.432	0.107	(0.264)	0.325
184	15.33	0.77	0.414	0.106	(0.253)	0.308
185	15.42	0.77	0.414	0.106	(0.253)	0.308
186	15.50	0.77	0.414	0.105	(0.253)	0.309
187	15.58	0.63	0.342	0.105	(0.209)	0.237
188	15.67	0.63	0.342	0.104	(0.209)	0.238
189	15.75	0.63	0.342	0.104	(0.209)	0.238
190	15.83	0.63	0.342	0.103	(0.209)	0.239
191	15.92	0.63	0.342	0.103	(0.209)	0.239
192	16.00	0.63	0.342	0.102	(0.209)	0.240
193	16.08	0.13	0.072	(0.101)	0.044	0.028
194	16.17	0.13	0.072	(0.101)	0.044	0.028

195	16.25	0.13	0.072	(0.100)	0.044	0.028
196	16.33	0.13	0.072	(0.100)	0.044	0.028
197	16.42	0.13	0.072	(0.099)	0.044	0.028
198	16.50	0.13	0.072	(0.099)	0.044	0.028
199	16.58	0.10	0.054	(0.098)	0.033	0.021
200	16.67	0.10	0.054	(0.098)	0.033	0.021
201	16.75	0.10	0.054	(0.097)	0.033	0.021
202	16.83	0.10	0.054	(0.097)	0.033	0.021
203	16.92	0.10	0.054	(0.096)	0.033	0.021
204	17.00	0.10	0.054	(0.096)	0.033	0.021
205	17.08	0.17	0.090	(0.095)	0.055	0.035
206	17.17	0.17	0.090	(0.095)	0.055	0.035
207	17.25	0.17	0.090	(0.094)	0.055	0.035
208	17.33	0.17	0.090	(0.094)	0.055	0.035
209	17.42	0.17	0.090	(0.094)	0.055	0.035
210	17.50	0.17	0.090	(0.093)	0.055	0.035
211	17.58	0.17	0.090	(0.093)	0.055	0.035
212	17.67	0.17	0.090	(0.092)	0.055	0.035
213	17.75	0.17	0.090	(0.092)	0.055	0.035
214	17.83	0.13	0.072	(0.091)	0.044	0.028
215	17.92	0.13	0.072	(0.091)	0.044	0.028
216	18.00	0.13	0.072	(0.090)	0.044	0.028
217	18.08	0.13	0.072	(0.090)	0.044	0.028
218	18.17	0.13	0.072	(0.089)	0.044	0.028
219	18.25	0.13	0.072	(0.089)	0.044	0.028
220	18.33	0.13	0.072	(0.089)	0.044	0.028
221	18.42	0.13	0.072	(0.088)	0.044	0.028
222	18.50	0.13	0.072	(0.088)	0.044	0.028
223	18.58	0.10	0.054	(0.087)	0.033	0.021
224	18.67	0.10	0.054	(0.087)	0.033	0.021
225	18.75	0.10	0.054	(0.086)	0.033	0.021
226	18.83	0.07	0.036	(0.086)	0.022	0.014
227	18.92	0.07	0.036	(0.086)	0.022	0.014
228	19.00	0.07	0.036	(0.085)	0.022	0.014
229	19.08	0.10	0.054	(0.085)	0.033	0.021
230	19.17	0.10	0.054	(0.084)	0.033	0.021
231	19.25	0.10	0.054	(0.084)	0.033	0.021
232	19.33	0.13	0.072	(0.084)	0.044	0.028
233	19.42	0.13	0.072	(0.083)	0.044	0.028
234	19.50	0.13	0.072	(0.083)	0.044	0.028
235	19.58	0.10	0.054	(0.082)	0.033	0.021
236	19.67	0.10	0.054	(0.082)	0.033	0.021
237	19.75	0.10	0.054	(0.082)	0.033	0.021
238	19.83	0.07	0.036	(0.081)	0.022	0.014
239	19.92	0.07	0.036	(0.081)	0.022	0.014
240	20.00	0.07	0.036	(0.081)	0.022	0.014
241	20.08	0.10	0.054	(0.080)	0.033	0.021
242	20.17	0.10	0.054	(0.080)	0.033	0.021
243	20.25	0.10	0.054	(0.080)	0.033	0.021
244	20.33	0.10	0.054	(0.079)	0.033	0.021
245	20.42	0.10	0.054	(0.079)	0.033	0.021
246	20.50	0.10	0.054	(0.079)	0.033	0.021
247	20.58	0.10	0.054	(0.078)	0.033	0.021
248	20.67	0.10	0.054	(0.078)	0.033	0.021
249	20.75	0.10	0.054	(0.078)	0.033	0.021
250	20.83	0.07	0.036	(0.077)	0.022	0.014
251	20.92	0.07	0.036	(0.077)	0.022	0.014
252	21.00	0.07	0.036	(0.077)	0.022	0.014
253	21.08	0.10	0.054	(0.076)	0.033	0.021
254	21.17	0.10	0.054	(0.076)	0.033	0.021
255	21.25	0.10	0.054	(0.076)	0.033	0.021
256	21.33	0.07	0.036	(0.075)	0.022	0.014
257	21.42	0.07	0.036	(0.075)	0.022	0.014
258	21.50	0.07	0.036	(0.075)	0.022	0.014
259	21.58	0.10	0.054	(0.075)	0.033	0.021
260	21.67	0.10	0.054	(0.074)	0.033	0.021
261	21.75	0.10	0.054	(0.074)	0.033	0.021
262	21.83	0.07	0.036	(0.074)	0.022	0.014
263	21.92	0.07	0.036	(0.074)	0.022	0.014
264	22.00	0.07	0.036	(0.073)	0.022	0.014
265	22.08	0.10	0.054	(0.073)	0.033	0.021
266	22.17	0.10	0.054	(0.073)	0.033	0.021
267	22.25	0.10	0.054	(0.073)	0.033	0.021
268	22.33	0.07	0.036	(0.072)	0.022	0.014

269	22.42	0.07	0.036	(0.072)	0.022	0.014
270	22.50	0.07	0.036	(0.072)	0.022	0.014
271	22.58	0.07	0.036	(0.072)	0.022	0.014
272	22.67	0.07	0.036	(0.072)	0.022	0.014
273	22.75	0.07	0.036	(0.071)	0.022	0.014
274	22.83	0.07	0.036	(0.071)	0.022	0.014
275	22.92	0.07	0.036	(0.071)	0.022	0.014
276	23.00	0.07	0.036	(0.071)	0.022	0.014
277	23.08	0.07	0.036	(0.071)	0.022	0.014
278	23.17	0.07	0.036	(0.070)	0.022	0.014
279	23.25	0.07	0.036	(0.070)	0.022	0.014
280	23.33	0.07	0.036	(0.070)	0.022	0.014
281	23.42	0.07	0.036	(0.070)	0.022	0.014
282	23.50	0.07	0.036	(0.070)	0.022	0.014
283	23.58	0.07	0.036	(0.070)	0.022	0.014
284	23.67	0.07	0.036	(0.070)	0.022	0.014
285	23.75	0.07	0.036	(0.070)	0.022	0.014
286	23.83	0.07	0.036	(0.070)	0.022	0.014
287	23.92	0.07	0.036	(0.069)	0.022	0.014
288	24.00	0.07	0.036	(0.069)	0.022	0.014

(Loss Rate Not Used)

Sum = 100.0 Sum = 31.5

Flood volume = Effective rainfall 2.62 (In)
 times area 1.6 (Ac.) / [(In) / (Ft.)] = 0.4 (Ac.Ft)
 Total soil loss = 1.88 (In)
 Total soil loss = 0.255 (Ac.Ft)
 Total rainfall = 4.50 (In)
 Flood volume = 15523.0 Cubic Feet
 Total soil loss = 11102.9 Cubic Feet

 Peak flow rate of this hydrograph = 0.810 (CFS)

+++++

24 - H O U R S T O R M
 R u n o f f H y d r o g r a p h

 Hydrograph in 5 Minute intervals ((CFS))

Time (h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0001	0.02	Q				
0+10	0.0003	0.02	Q				
0+15	0.0004	0.02	Q				
0+20	0.0006	0.03	Q				
0+25	0.0009	0.03	Q				
0+30	0.0011	0.03	Q				
0+35	0.0013	0.03	Q				
0+40	0.0016	0.03	Q				
0+45	0.0018	0.03	Q				
0+50	0.0021	0.04	Q				
0+55	0.0024	0.05	Q				
1+ 0	0.0027	0.05	Q				
1+ 5	0.0030	0.04	Q				
1+10	0.0032	0.03	Q				
1+15	0.0035	0.03	Q				
1+20	0.0037	0.03	Q				
1+25	0.0040	0.03	Q				
1+30	0.0042	0.03	Q				
1+35	0.0044	0.03	Q				
1+40	0.0047	0.03	Q				
1+45	0.0049	0.03	Q				
1+50	0.0052	0.04	Q				
1+55	0.0055	0.05	Q				
2+ 0	0.0058	0.05	Q				
2+ 5	0.0061	0.05	Q				
2+10	0.0065	0.05	Q				
2+15	0.0068	0.05	Q				
2+20	0.0071	0.05	Q				
2+25	0.0074	0.05	Q				
2+30	0.0077	0.05	Q				
2+35	0.0081	0.05	Q				
2+40	0.0085	0.06	Q				
2+45	0.0089	0.06	Q				

2+50	0.0093	0.06	QV						
2+55	0.0097	0.06	QV						
3+ 0	0.0101	0.06	QV						
3+ 5	0.0105	0.06	QV						
3+10	0.0109	0.06	QV						
3+15	0.0113	0.06	QV						
3+20	0.0117	0.06	QV						
3+25	0.0120	0.06	QV						
3+30	0.0124	0.06	QV						
3+35	0.0128	0.06	QV						
3+40	0.0132	0.06	QV						
3+45	0.0136	0.06	QV						
3+50	0.0141	0.07	QV						
3+55	0.0146	0.07	QV						
4+ 0	0.0150	0.07	QV						
4+ 5	0.0155	0.07	QV						
4+10	0.0160	0.07	QV						
4+15	0.0164	0.07	QV						
4+20	0.0170	0.08	QV						
4+25	0.0175	0.08	QV						
4+30	0.0181	0.08	Q V						
4+35	0.0186	0.08	Q V						
4+40	0.0192	0.08	Q V						
4+45	0.0197	0.08	Q V						
4+50	0.0204	0.09	Q V						
4+55	0.0210	0.09	Q V						
5+ 0	0.0216	0.09	Q V						
5+ 5	0.0221	0.08	Q V						
5+10	0.0226	0.07	Q V						
5+15	0.0231	0.07	Q V						
5+20	0.0236	0.08	Q V						
5+25	0.0242	0.08	Q V						
5+30	0.0247	0.08	Q V						
5+35	0.0253	0.09	Q V						
5+40	0.0260	0.09	Q V						
5+45	0.0266	0.09	Q V						
5+50	0.0272	0.09	Q V						
5+55	0.0279	0.09	Q V						
6+ 0	0.0285	0.09	Q V						
6+ 5	0.0292	0.10	Q V						
6+10	0.0299	0.10	Q V						
6+15	0.0306	0.10	Q V						
6+20	0.0313	0.10	Q V						
6+25	0.0320	0.10	Q V						
6+30	0.0327	0.10	Q V						
6+35	0.0335	0.11	Q V						
6+40	0.0343	0.11	Q V						
6+45	0.0351	0.11	Q V						
6+50	0.0359	0.11	Q V						
6+55	0.0367	0.11	Q V						
7+ 0	0.0375	0.11	Q V						
7+ 5	0.0382	0.11	Q V						
7+10	0.0390	0.11	Q V						
7+15	0.0398	0.11	Q V						
7+20	0.0407	0.12	Q V						
7+25	0.0415	0.13	Q V						
7+30	0.0424	0.13	Q V						
7+35	0.0433	0.13	Q V						
7+40	0.0443	0.14	Q V						
7+45	0.0452	0.14	Q V						
7+50	0.0462	0.15	Q V						
7+55	0.0473	0.15	Q V						
8+ 0	0.0483	0.15	Q V						
8+ 5	0.0494	0.17	Q V						
8+10	0.0506	0.18	Q V						
8+15	0.0519	0.18	Q V						
8+20	0.0531	0.18	Q V						
8+25	0.0543	0.18	Q V						
8+30	0.0556	0.18	Q V						
8+35	0.0570	0.20	Q V						
8+40	0.0584	0.21	Q V						
8+45	0.0599	0.21	Q V						
8+50	0.0615	0.24	Q V						
8+55	0.0632	0.25	Q V						

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9+ 0	0.0649	0.25	Q	V							
9+ 5	0.0669	0.29	IQ	V							
9+10	0.0690	0.31	IQ	V							
9+15	0.0712	0.31	IQ	V							
9+20	0.0734	0.33	IQ	V							
9+25	0.0758	0.34	IQ	V							
9+30	0.0782	0.34	IQ	V							
9+35	0.0807	0.36	IQ	V							
9+40	0.0833	0.38	IQ	V							
9+45	0.0859	0.38	IQ	V							
9+50	0.0886	0.40	IQ	V							
9+55	0.0914	0.41	IQ	V							
10+ 0	0.0942	0.41	IQ	V							
10+ 5	0.0961	0.27	IQ	V							
10+10	0.0975	0.20	Q	V							
10+15	0.0989	0.21	Q	V							
10+20	0.1003	0.21	Q	V							
10+25	0.1018	0.21	Q	V							
10+30	0.1032	0.21	Q	V							
10+35	0.1053	0.31	IQ	V							
10+40	0.1078	0.36	IQ		V						
10+45	0.1103	0.36	IQ		V						
10+50	0.1128	0.36	IQ		V						
10+55	0.1153	0.36	IQ		V						
11+ 0	0.1178	0.36	IQ		V						
11+ 5	0.1202	0.35	IQ		V						
11+10	0.1225	0.34	IQ		V						
11+15	0.1248	0.34	IQ		V						
11+20	0.1272	0.34	IQ		V						
11+25	0.1295	0.34	IQ		V						
11+30	0.1318	0.34	IQ		V						
11+35	0.1339	0.30	IQ		V						
11+40	0.1359	0.28	IQ		V						
11+45	0.1378	0.29	IQ		V						
11+50	0.1400	0.31	IQ		V						
11+55	0.1421	0.32	IQ		V						
12+ 0	0.1443	0.32	IQ		V						
12+ 5	0.1475	0.46	IQ		V						
12+10	0.1511	0.53	Q		V						
12+15	0.1548	0.53	Q		V						
12+20	0.1585	0.55	Q		V						
12+25	0.1624	0.56	Q		V						
12+30	0.1663	0.56	Q		V						
12+35	0.1704	0.60	Q		V						
12+40	0.1747	0.62	Q		V						
12+45	0.1790	0.62	Q		V						
12+50	0.1834	0.64	Q		V						
12+55	0.1879	0.65	Q		V						
13+ 0	0.1925	0.66	Q		V						
13+ 5	0.1977	0.76	Q		V						
13+10	0.2032	0.81	Q		V						
13+15	0.2088	0.81	Q		V						
13+20	0.2144	0.81	Q		V						
13+25	0.2199	0.81	Q		V						
13+30	0.2255	0.81	Q		V						
13+35	0.2296	0.59	Q		V						
13+40	0.2329	0.49	IQ		V						
13+45	0.2363	0.49	IQ		V						
13+50	0.2396	0.49	IQ		V						
13+55	0.2430	0.49	IQ		V						
14+ 0	0.2464	0.49	IQ		V						
14+ 5	0.2503	0.57	Q		V						
14+10	0.2545	0.61	Q		V						
14+15	0.2587	0.61	Q		V						
14+20	0.2628	0.59	Q		V						
14+25	0.2669	0.58	Q		V						
14+30	0.2709	0.59	Q		V						
14+35	0.2749	0.59	Q		V						
14+40	0.2790	0.59	Q		V						
14+45	0.2830	0.59	Q		V						
14+50	0.2869	0.57	Q		V						
14+55	0.2908	0.56	Q		V						
15+ 0	0.2946	0.56	Q		V						
15+ 5	0.2984	0.54	Q		V						

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15+10	0.3021	0.53	Q				V	
15+15	0.3057	0.53	Q				V	
15+20	0.3093	0.51	Q				V	
15+25	0.3128	0.51	Q				V	
15+30	0.3163	0.51	Q				V	
15+35	0.3192	0.43	Q				V	
15+40	0.3219	0.39	Q				V	
15+45	0.3246	0.39	Q				V	
15+50	0.3273	0.39	Q				V	
15+55	0.3300	0.39	Q				V	
16+ 0	0.3327	0.39	Q				V	
16+ 5	0.3338	0.16	Q				V	
16+10	0.3341	0.05	Q				V	
16+15	0.3344	0.05	Q				V	
16+20	0.3348	0.05	Q				V	
16+25	0.3351	0.05	Q				V	
16+30	0.3354	0.05	Q				V	
16+35	0.3356	0.04	Q				V	
16+40	0.3359	0.03	Q				V	
16+45	0.3361	0.03	Q				V	
16+50	0.3364	0.03	Q				V	
16+55	0.3366	0.03	Q				V	
17+ 0	0.3368	0.03	Q				V	
17+ 5	0.3372	0.05	Q				V	
17+10	0.3376	0.06	Q				V	
17+15	0.3380	0.06	Q				V	
17+20	0.3384	0.06	Q				V	
17+25	0.3388	0.06	Q				V	
17+30	0.3392	0.06	Q				V	
17+35	0.3396	0.06	Q				V	
17+40	0.3399	0.06	Q				V	
17+45	0.3403	0.06	Q				V	
17+50	0.3407	0.05	Q				V	
17+55	0.3410	0.05	Q				V	
18+ 0	0.3413	0.05	Q				V	
18+ 5	0.3416	0.05	Q				V	
18+10	0.3419	0.05	Q				V	
18+15	0.3423	0.05	Q				V	
18+20	0.3426	0.05	Q				V	
18+25	0.3429	0.05	Q				V	
18+30	0.3432	0.05	Q				V	
18+35	0.3435	0.04	Q				V	
18+40	0.3437	0.03	Q				V	
18+45	0.3440	0.03	Q				V	
18+50	0.3441	0.03	Q				V	
18+55	0.3443	0.02	Q				V	
19+ 0	0.3445	0.02	Q				V	
19+ 5	0.3447	0.03	Q				V	
19+10	0.3449	0.03	Q				V	
19+15	0.3451	0.03	Q				V	
19+20	0.3454	0.04	Q				V	
19+25	0.3457	0.05	Q				V	
19+30	0.3461	0.05	Q				V	
19+35	0.3463	0.04	Q				V	
19+40	0.3466	0.03	Q				V	
19+45	0.3468	0.03	Q				V	
19+50	0.3470	0.03	Q				V	
19+55	0.3471	0.02	Q				V	
20+ 0	0.3473	0.02	Q				V	
20+ 5	0.3475	0.03	Q				V	
20+10	0.3477	0.03	Q				V	
20+15	0.3480	0.03	Q				V	
20+20	0.3482	0.03	Q				V	
20+25	0.3485	0.03	Q				V	
20+30	0.3487	0.03	Q				V	
20+35	0.3489	0.03	Q				V	
20+40	0.3492	0.03	Q				V	
20+45	0.3494	0.03	Q				V	
20+50	0.3496	0.03	Q				V	
20+55	0.3497	0.02	Q				V	
21+ 0	0.3499	0.02	Q				V	
21+ 5	0.3501	0.03	Q				V	
21+10	0.3504	0.03	Q				V	
21+15	0.3506	0.03	Q				V	

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21+20	0.3508	0.03	Q					V
21+25	0.3509	0.02	Q					V
21+30	0.3511	0.02	Q					V
21+35	0.3513	0.03	Q					V
21+40	0.3515	0.03	Q					V
21+45	0.3518	0.03	Q					V
21+50	0.3520	0.03	Q					V
21+55	0.3521	0.02	Q					V
22+ 0	0.3523	0.02	Q					V
22+ 5	0.3525	0.03	Q					V
22+10	0.3527	0.03	Q					V
22+15	0.3530	0.03	Q					V
22+20	0.3531	0.03	Q					V
22+25	0.3533	0.02	Q					V
22+30	0.3535	0.02	Q					V
22+35	0.3536	0.02	Q					V
22+40	0.3538	0.02	Q					V
22+45	0.3539	0.02	Q					V
22+50	0.3541	0.02	Q					V
22+55	0.3543	0.02	Q					V
23+ 0	0.3544	0.02	Q					V
23+ 5	0.3546	0.02	Q					V
23+10	0.3547	0.02	Q					V
23+15	0.3549	0.02	Q					V
23+20	0.3550	0.02	Q					V
23+25	0.3552	0.02	Q					V
23+30	0.3554	0.02	Q					V
23+35	0.3555	0.02	Q					V
23+40	0.3557	0.02	Q					V
23+45	0.3558	0.02	Q					V
23+50	0.3560	0.02	Q					V
23+55	0.3562	0.02	Q					V
24+ 0	0.3563	0.02	Q					V
24+ 5	0.3564	0.01	Q					V

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

- **Area 'A' – 10 Year 1 Hour Post-Development Condition – Unit Hydrograph**

Unit Hydrograph Analysis

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 Study date 07/23/20 File: prl0110.out

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Riverside County Synthetic Unit Hydrology Method
 RCFC & WCD Manual date - April 1978

Program License Serial Number 6407

English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

English Units used in output format

FARM MARKET EXPANSION
 PROPOSED CONDITION UNIT HYDROGRAPH - 10 YEAR 1 HOUR STORM
 WMB & ASSOCIATES, JULY 2020
 BY: BRIAN LOWELL, PE

Drainage Area = 1.68(Ac.) = 0.003 Sq. Mi.
 Drainage Area for Depth-Area Areal Adjustment = 1.68(Ac.) = 0.003 Sq. Mi.
 Length along longest watercourse = 483.00(Ft.)
 Length along longest watercourse measured to centroid = 149.00(Ft.)
 Length along longest watercourse = 0.091 Mi.
 Length along longest watercourse measured to centroid = 0.028 Mi.
 Difference in elevation = 7.90(Ft.)
 Slope along watercourse = 86.3602 Ft./Mi.
 Average Manning's 'N' = 0.015
 Lag time = 0.016 Hr.
 Lag time = 0.96 Min.
 25% of lag time = 0.24 Min.
 40% of lag time = 0.38 Min.
 Unit time = 5.00 Min.
 Duration of storm = 1 Hour(s)
 User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall(In) [2]	Weighting[1*2]
1.68	0.50	0.84

100 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall(In) [2]	Weighting[1*2]
1.68	1.20	2.02

STORM EVENT (YEAR) = 10.00
 Area Averaged 2-Year Rainfall = 0.500(In)
 Area Averaged 100-Year Rainfall = 1.200(In)

Point rain (area averaged) = 0.788(In)
 Areal adjustment factor = 100.00 %
 Adjusted average point rain = 0.788(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
1.680	56.00	0.700
Total Area Entered = 1.68(Ac.)		

RI	RI	Infil. Rate	Impervious	Adj. Infil. Rate	Area%	F
AMC2	AMC-2	(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
56.0	56.0	0.511	0.700	0.189	1.000	0.189
Sum (F) =						0.189

Area averaged mean soil loss (F) (In/Hr) = 0.189

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Minimum soil loss rate ((In/Hr)) = 0.094
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.340

Slope of intensity-duration curve for a 1 hour storm =0.5000

Unit Hydrograph
 VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	519.885	71.883
2	0.167	1039.769	28.117
		Sum = 100.000	Sum= 1.693

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate (In./Hr) Max Low	Effective (In/Hr)
1	0.08	4.20	(0.189) 0.135	0.262
2	0.17	4.30	(0.189) 0.138	0.268
3	0.25	5.00	(0.189) 0.161	0.312
4	0.33	5.00	(0.189) 0.161	0.312
5	0.42	5.80	(0.189) 0.186	0.362
6	0.50	6.50	0.189 (0.209)	0.426
7	0.58	7.40	0.189 (0.238)	0.511
8	0.67	8.60	0.189 (0.276)	0.624
9	0.75	12.30	0.189 (0.395)	0.974
10	0.83	29.10	0.189 (0.936)	2.563
11	0.92	6.80	0.189 (0.219)	0.454
12	1.00	5.00	(0.189) 0.161	0.312

(Loss Rate Not Used)
 Sum = 100.0 Sum = 7.4

Flood volume = Effective rainfall 0.61(In)
 times area 1.7(Ac.)/[(In)/(Ft.)] = 0.1(Ac.Ft)
 Total soil loss = 0.17(In)
 Total soil loss = 0.024(Ac.Ft)
 Total rainfall = 0.79(In)
 Flood volume = 3750.4 Cubic Feet
 Total soil loss = 1055.0 Cubic Feet

Peak flow rate of this hydrograph = 3.584(CFS)

1 - H O U R S T O R M
 R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0022	0.32	Q				
0+10	0.0053	0.45	QV				
0+15	0.0088	0.51	Q V				
0+20	0.0124	0.53	Q V				
0+25	0.0165	0.59	Q V				
0+30	0.0213	0.69	Q V				
0+35	0.0269	0.82	Q	V			
0+40	0.0339	1.00	Q	V			
0+45	0.0441	1.48	Q	V			
0+50	0.0688	3.58	Q	Q	V		
0+55	0.0810	1.77	Q			V	
1+ 0	0.0851	0.60	Q			V	
1+ 5	0.0861	0.15	Q			V	

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

- **Area 'A' – 10 Year 3 Hour Post-Development Condition – Unit Hydrograph**

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Unit Hydrograph Analysis

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 Study date 07/23/20 File: pr10310.out

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Riverside County Synthetic Unit Hydrology Method
 RCFC & WCD Manual date - April 1978

Program License Serial Number 6407

 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

English Units used in output format

 FARM MARKET EXPANSION
 PROPOSED CONDITION UNIT HYDROGRAPH - 10 YEAR 3 HOUR STORM
 WMB & ASSOCIATES, JULY 2020
 BY: BRIAN LOWELL, PE

 Drainage Area = 1.68(Ac.) = 0.003 Sq. Mi.
 Drainage Area for Depth-Area Areal Adjustment = 1.68(Ac.) = 0.003 Sq. Mi.
 Length along longest watercourse = 483.00(Ft.)
 Length along longest watercourse measured to centroid = 149.00(Ft.)
 Length along longest watercourse = 0.091 Mi.
 Length along longest watercourse measured to centroid = 0.028 Mi.
 Difference in elevation = 7.90(Ft.)
 Slope along watercourse = 86.3602 Ft./Mi.
 Average Manning's 'N' = 0.015
 Lag time = 0.016 Hr.
 Lag time = 0.96 Min.
 25% of lag time = 0.24 Min.
 40% of lag time = 0.38 Min.
 Unit time = 5.00 Min.
 Duration of storm = 3 Hour(s)
 User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall(In) [2]	Weighting[1*2]
1.68	0.80	1.34

100 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall(In) [2]	Weighting[1*2]
1.68	1.80	3.02

STORM EVENT (YEAR) = 10.00
 Area Averaged 2-Year Rainfall = 0.800(In)
 Area Averaged 100-Year Rainfall = 1.800(In)

Point rain (area averaged) = 1.211(In)
 Areal adjustment factor = 100.00 %
 Adjusted average point rain = 1.211(In)

Sub-Area Data:
 Area(Ac.) Runoff Index Impervious %
 1.680 56.00 0.700
 Total Area Entered = 1.68(Ac.)

RI RI Infil. Rate Impervious Adj. Infil. Rate Area% F

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

AMC2	AMC-2	(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
56.0	56.0	0.511	0.700	0.189	1.000	0.189
					Sum (F) =	0.189

Area averaged mean soil loss (F) (In/Hr) = 0.189
 Minimum soil loss rate ((In/Hr)) = 0.094
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.340

Unit Hydrograph
 VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	519.885	71.883
2	0.167	1039.769	28.117
		Sum = 100.000	Sum= 1.693

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate (In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.189	(0.189)	0.064
2	0.17	1.30	0.189	(0.189)	0.064
3	0.25	1.10	0.160	(0.189)	0.054
4	0.33	1.50	0.218	(0.189)	0.074
5	0.42	1.50	0.218	(0.189)	0.074
6	0.50	1.80	0.262	(0.189)	0.089
7	0.58	1.50	0.218	(0.189)	0.074
8	0.67	1.80	0.262	(0.189)	0.089
9	0.75	1.80	0.262	(0.189)	0.089
10	0.83	1.50	0.218	(0.189)	0.074
11	0.92	1.60	0.233	(0.189)	0.079
12	1.00	1.80	0.262	(0.189)	0.089
13	1.08	2.20	0.320	(0.189)	0.109
14	1.17	2.20	0.320	(0.189)	0.109
15	1.25	2.20	0.320	(0.189)	0.109
16	1.33	2.00	0.291	(0.189)	0.099
17	1.42	2.60	0.378	(0.189)	0.129
18	1.50	2.70	0.392	(0.189)	0.133
19	1.58	2.40	0.349	(0.189)	0.119
20	1.67	2.70	0.392	(0.189)	0.133
21	1.75	3.30	0.480	(0.189)	0.163
22	1.83	3.10	0.451	(0.189)	0.153
23	1.92	2.90	0.422	(0.189)	0.143
24	2.00	3.00	0.436	(0.189)	0.148
25	2.08	3.10	0.451	(0.189)	0.153
26	2.17	4.20	0.611	0.189 (0.208)	0.422
27	2.25	5.00	0.727	0.189 (0.247)	0.538
28	2.33	3.50	0.509	(0.189)	0.173
29	2.42	6.80	0.989	0.189 (0.336)	0.800
30	2.50	7.30	1.061	0.189 (0.361)	0.872
31	2.58	8.20	1.192	0.189 (0.405)	1.003
32	2.67	5.90	0.858	0.189 (0.292)	0.669
33	2.75	2.00	0.291	(0.189)	0.099
34	2.83	1.80	0.262	(0.189)	0.089
35	2.92	1.80	0.262	(0.189)	0.089
36	3.00	0.60	0.087	(0.189)	0.030

Sum = 100.0 (Loss Rate Not Used) Sum = 10.3
 Flood volume = Effective rainfall 0.86(In)
 times area 1.7(Ac.) / [(In)/(Ft.)] = 0.1(Ac.Ft)
 Total soil loss = 0.35(In)
 Total soil loss = 0.049(Ac.Ft)
 Total rainfall = 1.21(In)
 Flood volume = 5238.9 Cubic Feet
 Total soil loss = 2148.7 Cubic Feet

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Peak flow rate of this hydrograph = 1.637(CFS)

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3 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time (h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0010	0.15	Q				
0+10	0.0025	0.21	Q				
0+15	0.0038	0.19	QV				
0+20	0.0053	0.23	QV				
0+25	0.0070	0.24	Q V				
0+30	0.0089	0.28	QV				
0+35	0.0107	0.26	Q V				
0+40	0.0126	0.28	Q V				
0+45	0.0147	0.29	Q V				
0+50	0.0164	0.26	Q V				
0+55	0.0182	0.26	Q V				
1+ 0	0.0201	0.28	Q V				
1+ 5	0.0225	0.34	Q V				
1+10	0.0249	0.36	Q V				
1+15	0.0274	0.36	Q V				
1+20	0.0297	0.33	Q V				
1+25	0.0324	0.40	Q V				
1+30	0.0354	0.43	Q V				
1+35	0.0382	0.40	Q V				
1+40	0.0411	0.43	Q V				
1+45	0.0446	0.51	Q V				
1+50	0.0482	0.51	Q V				
1+55	0.0515	0.48	Q V				
2+ 0	0.0548	0.48	Q V				
2+ 5	0.0582	0.50	Q V				
2+10	0.0627	0.65	Q V				
2+15	0.0686	0.86	Q V				
2+20	0.0732	0.67	Q V				
2+25	0.0810	1.13	Q V				
2+30	0.0910	1.44	Q V				
2+35	0.1022	1.64	Q V				
2+40	0.1111	1.29	Q V				
2+45	0.1149	0.55	Q V				
2+50	0.1170	0.30	Q V				
2+55	0.1190	0.29	Q V				
3+ 0	0.1201	0.15	Q V				
3+ 5	0.1203	0.03	Q V				

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

- **Area 'A' – 10 Year 6 Hour Post-Development Condition – Unit Hydrograph**

Unit Hydrograph Analysis

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 Study date 07/23/20 File: pr10610.out

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Riverside County Synthetic Unit Hydrology Method
 RCFC & WCD Manual date - April 1978

Program License Serial Number 6407

English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

English Units used in output format

FARM MARKET EXPANSION
 PROPOSED CONDITION UNIT HYDROGRAPH - 10 YEAR 6 HOUR STORM
 WMB & ASSOCIATES, JULY 2020
 BY: BRIAN LOWELL, PE

 Drainage Area = 1.68(Ac.) = 0.003 Sq. Mi.
 Drainage Area for Depth-Area Areal Adjustment = 1.68(Ac.) = 0.003 Sq. Mi.
 Length along longest watercourse = 483.00(Ft.)
 Length along longest watercourse measured to centroid = 149.00(Ft.)
 Length along longest watercourse = 0.091 Mi.
 Length along longest watercourse measured to centroid = 0.028 Mi.
 Difference in elevation = 7.90(Ft.)
 Slope along watercourse = 86.3602 Ft./Mi.
 Average Manning's 'N' = 0.015
 Lag time = 0.016 Hr.
 Lag time = 0.96 Min.
 25% of lag time = 0.24 Min.
 40% of lag time = 0.38 Min.
 Unit time = 5.00 Min.
 Duration of storm = 6 Hour(s)
 User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall(In) [2]	Weighting[1*2]
1.68	1.20	2.02

100 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall(In) [2]	Weighting[1*2]
1.68	2.50	4.20

STORM EVENT (YEAR) = 10.00
 Area Averaged 2-Year Rainfall = 1.200(In)
 Area Averaged 100-Year Rainfall = 2.500(In)

Point rain (area averaged) = 1.735(In)
 Areal adjustment factor = 100.00 %
 Adjusted average point rain = 1.735(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
1.680	56.00	0.700
Total Area Entered = 1.68(Ac.)		

RI RI Infil. Rate Impervious Adj. Infil. Rate Area% F

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

AMC2	AMC-2	(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
56.0	56.0	0.511	0.700	0.189	1.000	0.189
					Sum (F) =	0.189

Area averaged mean soil loss (F) (In/Hr) = 0.189
 Minimum soil loss rate ((In/Hr)) = 0.094
 (for 24 hour storm duration)
 Soil loss rate (decimal) = 0.340

Unit Hydrograph
 VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	519.885	71.883
2	0.167	1039.769	28.117
		Sum = 100.000	Sum= 1.693

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr)		Effective (In/Hr)
				Max	Low	
1	0.08	0.50	0.104	(0.189)	0.035	0.069
2	0.17	0.60	0.125	(0.189)	0.042	0.082
3	0.25	0.60	0.125	(0.189)	0.042	0.082
4	0.33	0.60	0.125	(0.189)	0.042	0.082
5	0.42	0.60	0.125	(0.189)	0.042	0.082
6	0.50	0.70	0.146	(0.189)	0.050	0.096
7	0.58	0.70	0.146	(0.189)	0.050	0.096
8	0.67	0.70	0.146	(0.189)	0.050	0.096
9	0.75	0.70	0.146	(0.189)	0.050	0.096
10	0.83	0.70	0.146	(0.189)	0.050	0.096
11	0.92	0.70	0.146	(0.189)	0.050	0.096
12	1.00	0.80	0.167	(0.189)	0.057	0.110
13	1.08	0.80	0.167	(0.189)	0.057	0.110
14	1.17	0.80	0.167	(0.189)	0.057	0.110
15	1.25	0.80	0.167	(0.189)	0.057	0.110
16	1.33	0.80	0.167	(0.189)	0.057	0.110
17	1.42	0.80	0.167	(0.189)	0.057	0.110
18	1.50	0.80	0.167	(0.189)	0.057	0.110
19	1.58	0.80	0.167	(0.189)	0.057	0.110
20	1.67	0.80	0.167	(0.189)	0.057	0.110
21	1.75	0.80	0.167	(0.189)	0.057	0.110
22	1.83	0.80	0.167	(0.189)	0.057	0.110
23	1.92	0.80	0.167	(0.189)	0.057	0.110
24	2.00	0.90	0.187	(0.189)	0.064	0.124
25	2.08	0.80	0.167	(0.189)	0.057	0.110
26	2.17	0.90	0.187	(0.189)	0.064	0.124
27	2.25	0.90	0.187	(0.189)	0.064	0.124
28	2.33	0.90	0.187	(0.189)	0.064	0.124
29	2.42	0.90	0.187	(0.189)	0.064	0.124
30	2.50	0.90	0.187	(0.189)	0.064	0.124
31	2.58	0.90	0.187	(0.189)	0.064	0.124
32	2.67	0.90	0.187	(0.189)	0.064	0.124
33	2.75	1.00	0.208	(0.189)	0.071	0.137
34	2.83	1.00	0.208	(0.189)	0.071	0.137
35	2.92	1.00	0.208	(0.189)	0.071	0.137
36	3.00	1.00	0.208	(0.189)	0.071	0.137
37	3.08	1.00	0.208	(0.189)	0.071	0.137
38	3.17	1.10	0.229	(0.189)	0.078	0.151
39	3.25	1.10	0.229	(0.189)	0.078	0.151
40	3.33	1.10	0.229	(0.189)	0.078	0.151
41	3.42	1.20	0.250	(0.189)	0.085	0.165
42	3.50	1.30	0.271	(0.189)	0.092	0.179
43	3.58	1.40	0.291	(0.189)	0.099	0.192
44	3.67	1.40	0.291	(0.189)	0.099	0.192
45	3.75	1.50	0.312	(0.189)	0.106	0.206
46	3.83	1.50	0.312	(0.189)	0.106	0.206

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

47	3.92	1.60	0.333	(0.189)	0.113	0.220
48	4.00	1.60	0.333	(0.189)	0.113	0.220
49	4.08	1.70	0.354	(0.189)	0.120	0.234
50	4.17	1.80	0.375	(0.189)	0.127	0.247
51	4.25	1.90	0.396	(0.189)	0.134	0.261
52	4.33	2.00	0.416	(0.189)	0.142	0.275
53	4.42	2.10	0.437	(0.189)	0.149	0.289
54	4.50	2.10	0.437	(0.189)	0.149	0.289
55	4.58	2.20	0.458	(0.189)	0.156	0.302
56	4.67	2.30	0.479	(0.189)	0.163	0.316
57	4.75	2.40	0.500	(0.189)	0.170	0.330
58	4.83	2.40	0.500	(0.189)	0.170	0.330
59	4.92	2.50	0.520	(0.189)	0.177	0.343
60	5.00	2.60	0.541	(0.189)	0.184	0.357
61	5.08	3.10	0.645	0.189	(0.219)	0.456
62	5.17	3.60	0.749	0.189	(0.255)	0.560
63	5.25	3.90	0.812	0.189	(0.276)	0.623
64	5.33	4.20	0.874	0.189	(0.297)	0.685
65	5.42	4.70	0.978	0.189	(0.333)	0.789
66	5.50	5.60	1.166	0.189	(0.396)	0.977
67	5.58	1.90	0.396	(0.189)	0.134	0.261
68	5.67	0.90	0.187	(0.189)	0.064	0.124
69	5.75	0.60	0.125	(0.189)	0.042	0.082
70	5.83	0.50	0.104	(0.189)	0.035	0.069
71	5.92	0.30	0.062	(0.189)	0.021	0.041
72	6.00	0.20	0.042	(0.189)	0.014	0.027

(Loss Rate Not Used)

Sum = 100.0 Sum = 14.4

Flood volume = Effective rainfall 1.20 (In)
 times area 1.7 (Ac.) / [(In) / (Ft.)] = 0.2 (Ac.Ft)
 Total soil loss = 0.54 (In)
 Total soil loss = 0.075 (Ac.Ft)
 Total rainfall = 1.73 (In)
 Flood volume = 7309.1 Cubic Feet
 Total soil loss = 3270.5 Cubic Feet

 Peak flow rate of this hydrograph = 1.565 (CFS)

+++++

6 - H O U R S T O R M
 R u n o f f H y d r o g r a p h

 Hydrograph in 5 Minute intervals ((CFS))

Time (h+m)	Volume Ac.Ft	Q (CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0006	0.08	Q				
0+10	0.0015	0.13	Q				
0+15	0.0025	0.14	Q				
0+20	0.0034	0.14	Q				
0+25	0.0044	0.14	QV				
0+30	0.0055	0.16	QV				
0+35	0.0066	0.16	QV				
0+40	0.0077	0.16	QV				
0+45	0.0088	0.16	Q V				
0+50	0.0099	0.16	Q V				
0+55	0.0111	0.16	Q V				
1+ 0	0.0123	0.18	Q V				
1+ 5	0.0136	0.19	Q V				
1+10	0.0149	0.19	Q V				
1+15	0.0162	0.19	Q V				
1+20	0.0174	0.19	Q V				
1+25	0.0187	0.19	Q V				
1+30	0.0200	0.19	Q V				
1+35	0.0213	0.19	Q V				
1+40	0.0226	0.19	Q V				
1+45	0.0238	0.19	Q V				
1+50	0.0251	0.19	Q V				
1+55	0.0264	0.19	Q V				
2+ 0	0.0278	0.20	Q V				
2+ 5	0.0291	0.19	Q V				
2+10	0.0305	0.20	Q V				
2+15	0.0320	0.21	Q V				

2+20	0.0334	0.21	Q	v						
2+25	0.0349	0.21	Q	v						
2+30	0.0363	0.21	Q	v						
2+35	0.0377	0.21	Q	v						
2+40	0.0392	0.21	Q	v						
2+45	0.0407	0.23	Q	v						
2+50	0.0423	0.23	Q	v						
2+55	0.0440	0.23	Q	v						
3+ 0	0.0456	0.23	Q	v						
3+ 5	0.0472	0.23	Q	v						
3+10	0.0489	0.25	Q	v						
3+15	0.0506	0.26	IQ	v						
3+20	0.0524	0.26	IQ	v						
3+25	0.0543	0.27	IQ	v						
3+30	0.0563	0.30	IQ	v						
3+35	0.0585	0.32	IQ	v						
3+40	0.0608	0.33	IQ	v						
3+45	0.0631	0.34	IQ	v						
3+50	0.0655	0.35	IQ	v						
3+55	0.0680	0.37	IQ	v						
4+ 0	0.0706	0.37	IQ	v						
4+ 5	0.0733	0.39	IQ	v						
4+10	0.0761	0.41	IQ	v						
4+15	0.0791	0.44	IQ	v						
4+20	0.0823	0.46	IQ	v						
4+25	0.0856	0.48	IQ	v						
4+30	0.0890	0.49	IQ	v						
4+35	0.0925	0.51	IQ	v						
4+40	0.0961	0.53	IQ	v						
4+45	0.0999	0.55	IQ	v						
4+50	0.1038	0.56	IQ	v						
4+55	0.1077	0.58	IQ	v						
5+ 0	0.1118	0.60	IQ	v						
5+ 5	0.1168	0.73	IQ	v						
5+10	0.1230	0.90	IQ	v						
5+15	0.1301	1.03	IQ	v						
5+20	0.1379	1.13	IQ	v						
5+25	0.1468	1.29	IQ	v						
5+30	0.1575	1.57	IQ	v						
5+35	0.1629	0.78	IQ	v						
5+40	0.1648	0.27	IQ	v						
5+45	0.1659	0.16	Q	v						
5+50	0.1668	0.12	Q	v						
5+55	0.1673	0.08	Q	v						
6+ 0	0.1677	0.05	Q	v						
6+ 5	0.1678	0.01	Q	v						

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

- **Area 'A' – 10 Year 24 Hour Post-Development Condition – Unit Hydrograph**

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
 Study date 07/23/20 File: pr102410.out

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Riverside County Synthetic Unit Hydrology Method
 RCFC & WCD Manual date - April 1978

Program License Serial Number 6407

 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

English Units used in output format

 FARM MARKET EXPANSION
 PROPOSED CONDITION UNIT HYDROGRAPH - 10 YEAR 24 HOUR STORM
 WMB & ASSOCIATES, JULY 2020
 BY: BRIAN LOWELL, PE

 Drainage Area = 1.68(Ac.) = 0.003 Sq. Mi.
 Drainage Area for Depth-Area Areal Adjustment = 1.68(Ac.) = 0.003 Sq. Mi.
 Length along longest watercourse = 483.00(Ft.)
 Length along longest watercourse measured to centroid = 149.00(Ft.)
 Length along longest watercourse = 0.091 Mi.
 Length along longest watercourse measured to centroid = 0.028 Mi.
 Difference in elevation = 7.90(Ft.)
 Slope along watercourse = 86.3602 Ft./Mi.
 Average Manning's 'N' = 0.015
 Lag time = 0.016 Hr.
 Lag time = 0.96 Min.
 25% of lag time = 0.24 Min.
 40% of lag time = 0.38 Min.
 Unit time = 5.00 Min.
 Duration of storm = 24 Hour(s)
 User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall(In) [2]	Weighting[1*2]
1.68	1.80	3.02

100 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall(In) [2]	Weighting[1*2]
1.68	4.50	7.56

STORM EVENT (YEAR) = 10.00
 Area Averaged 2-Year Rainfall = 1.800(In)
 Area Averaged 100-Year Rainfall = 4.500(In)

Point rain (area averaged) = 2.911(In)
 Areal adjustment factor = 100.00 %
 Adjusted average point rain = 2.911(In)

Sub-Area Data:
 Area(Ac.) Runoff Index Impervious %
 1.680 56.00 0.700
 Total Area Entered = 1.68(Ac.)

RI RI Infil. Rate Impervious Adj. Infil. Rate Area% F

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AMC2	AMC-2	(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
56.0	56.0	0.511	0.700	0.189	1.000	0.189
					Sum (F) =	0.189

Area averaged mean soil loss (F) (In/Hr) = 0.189
 Minimum soil loss rate ((In/Hr)) = 0.094
 (for 24 hour storm duration)
 Soil loss rate (decimal) = 0.340

Unit Hydrograph
 VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	519.885	71.883
2	0.167	1039.769	28.117
		Sum = 100.000	Sum= 1.693

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr)		Effective (In/Hr)
				Max	Low	
1	0.08	0.07	0.023	(0.335)	0.008	0.015
2	0.17	0.07	0.023	(0.334)	0.008	0.015
3	0.25	0.07	0.023	(0.332)	0.008	0.015
4	0.33	0.10	0.035	(0.331)	0.012	0.023
5	0.42	0.10	0.035	(0.330)	0.012	0.023
6	0.50	0.10	0.035	(0.329)	0.012	0.023
7	0.58	0.10	0.035	(0.327)	0.012	0.023
8	0.67	0.10	0.035	(0.326)	0.012	0.023
9	0.75	0.10	0.035	(0.325)	0.012	0.023
10	0.83	0.13	0.047	(0.323)	0.016	0.031
11	0.92	0.13	0.047	(0.322)	0.016	0.031
12	1.00	0.13	0.047	(0.321)	0.016	0.031
13	1.08	0.10	0.035	(0.320)	0.012	0.023
14	1.17	0.10	0.035	(0.318)	0.012	0.023
15	1.25	0.10	0.035	(0.317)	0.012	0.023
16	1.33	0.10	0.035	(0.316)	0.012	0.023
17	1.42	0.10	0.035	(0.315)	0.012	0.023
18	1.50	0.10	0.035	(0.313)	0.012	0.023
19	1.58	0.10	0.035	(0.312)	0.012	0.023
20	1.67	0.10	0.035	(0.311)	0.012	0.023
21	1.75	0.10	0.035	(0.310)	0.012	0.023
22	1.83	0.13	0.047	(0.308)	0.016	0.031
23	1.92	0.13	0.047	(0.307)	0.016	0.031
24	2.00	0.13	0.047	(0.306)	0.016	0.031
25	2.08	0.13	0.047	(0.305)	0.016	0.031
26	2.17	0.13	0.047	(0.303)	0.016	0.031
27	2.25	0.13	0.047	(0.302)	0.016	0.031
28	2.33	0.13	0.047	(0.301)	0.016	0.031
29	2.42	0.13	0.047	(0.300)	0.016	0.031
30	2.50	0.13	0.047	(0.298)	0.016	0.031
31	2.58	0.17	0.058	(0.297)	0.020	0.038
32	2.67	0.17	0.058	(0.296)	0.020	0.038
33	2.75	0.17	0.058	(0.295)	0.020	0.038
34	2.83	0.17	0.058	(0.294)	0.020	0.038
35	2.92	0.17	0.058	(0.292)	0.020	0.038
36	3.00	0.17	0.058	(0.291)	0.020	0.038
37	3.08	0.17	0.058	(0.290)	0.020	0.038
38	3.17	0.17	0.058	(0.289)	0.020	0.038
39	3.25	0.17	0.058	(0.288)	0.020	0.038
40	3.33	0.17	0.058	(0.286)	0.020	0.038
41	3.42	0.17	0.058	(0.285)	0.020	0.038
42	3.50	0.17	0.058	(0.284)	0.020	0.038
43	3.58	0.17	0.058	(0.283)	0.020	0.038
44	3.67	0.17	0.058	(0.282)	0.020	0.038
45	3.75	0.17	0.058	(0.280)	0.020	0.038
46	3.83	0.20	0.070	(0.279)	0.024	0.046

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47	3.92	0.20	0.070	(0.278)	0.024	0.046
48	4.00	0.20	0.070	(0.277)	0.024	0.046
49	4.08	0.20	0.070	(0.276)	0.024	0.046
50	4.17	0.20	0.070	(0.275)	0.024	0.046
51	4.25	0.20	0.070	(0.273)	0.024	0.046
52	4.33	0.23	0.082	(0.272)	0.028	0.054
53	4.42	0.23	0.082	(0.271)	0.028	0.054
54	4.50	0.23	0.082	(0.270)	0.028	0.054
55	4.58	0.23	0.082	(0.269)	0.028	0.054
56	4.67	0.23	0.082	(0.268)	0.028	0.054
57	4.75	0.23	0.082	(0.266)	0.028	0.054
58	4.83	0.27	0.093	(0.265)	0.032	0.061
59	4.92	0.27	0.093	(0.264)	0.032	0.061
60	5.00	0.27	0.093	(0.263)	0.032	0.061
61	5.08	0.20	0.070	(0.262)	0.024	0.046
62	5.17	0.20	0.070	(0.261)	0.024	0.046
63	5.25	0.20	0.070	(0.260)	0.024	0.046
64	5.33	0.23	0.082	(0.258)	0.028	0.054
65	5.42	0.23	0.082	(0.257)	0.028	0.054
66	5.50	0.23	0.082	(0.256)	0.028	0.054
67	5.58	0.27	0.093	(0.255)	0.032	0.061
68	5.67	0.27	0.093	(0.254)	0.032	0.061
69	5.75	0.27	0.093	(0.253)	0.032	0.061
70	5.83	0.27	0.093	(0.252)	0.032	0.061
71	5.92	0.27	0.093	(0.251)	0.032	0.061
72	6.00	0.27	0.093	(0.249)	0.032	0.061
73	6.08	0.30	0.105	(0.248)	0.036	0.069
74	6.17	0.30	0.105	(0.247)	0.036	0.069
75	6.25	0.30	0.105	(0.246)	0.036	0.069
76	6.33	0.30	0.105	(0.245)	0.036	0.069
77	6.42	0.30	0.105	(0.244)	0.036	0.069
78	6.50	0.30	0.105	(0.243)	0.036	0.069
79	6.58	0.33	0.116	(0.242)	0.040	0.077
80	6.67	0.33	0.116	(0.241)	0.040	0.077
81	6.75	0.33	0.116	(0.240)	0.040	0.077
82	6.83	0.33	0.116	(0.239)	0.040	0.077
83	6.92	0.33	0.116	(0.237)	0.040	0.077
84	7.00	0.33	0.116	(0.236)	0.040	0.077
85	7.08	0.33	0.116	(0.235)	0.040	0.077
86	7.17	0.33	0.116	(0.234)	0.040	0.077
87	7.25	0.33	0.116	(0.233)	0.040	0.077
88	7.33	0.37	0.128	(0.232)	0.044	0.085
89	7.42	0.37	0.128	(0.231)	0.044	0.085
90	7.50	0.37	0.128	(0.230)	0.044	0.085
91	7.58	0.40	0.140	(0.229)	0.048	0.092
92	7.67	0.40	0.140	(0.228)	0.048	0.092
93	7.75	0.40	0.140	(0.227)	0.048	0.092
94	7.83	0.43	0.151	(0.226)	0.051	0.100
95	7.92	0.43	0.151	(0.225)	0.051	0.100
96	8.00	0.43	0.151	(0.224)	0.051	0.100
97	8.08	0.50	0.175	(0.223)	0.059	0.115
98	8.17	0.50	0.175	(0.222)	0.059	0.115
99	8.25	0.50	0.175	(0.221)	0.059	0.115
100	8.33	0.50	0.175	(0.220)	0.059	0.115
101	8.42	0.50	0.175	(0.219)	0.059	0.115
102	8.50	0.50	0.175	(0.217)	0.059	0.115
103	8.58	0.53	0.186	(0.216)	0.063	0.123
104	8.67	0.53	0.186	(0.215)	0.063	0.123
105	8.75	0.53	0.186	(0.214)	0.063	0.123
106	8.83	0.57	0.198	(0.213)	0.067	0.131
107	8.92	0.57	0.198	(0.212)	0.067	0.131
108	9.00	0.57	0.198	(0.211)	0.067	0.131
109	9.08	0.63	0.221	(0.210)	0.075	0.146
110	9.17	0.63	0.221	(0.209)	0.075	0.146
111	9.25	0.63	0.221	(0.208)	0.075	0.146
112	9.33	0.67	0.233	(0.207)	0.079	0.154
113	9.42	0.67	0.233	(0.206)	0.079	0.154
114	9.50	0.67	0.233	(0.205)	0.079	0.154
115	9.58	0.70	0.245	(0.204)	0.083	0.161
116	9.67	0.70	0.245	(0.203)	0.083	0.161
117	9.75	0.70	0.245	(0.202)	0.083	0.161
118	9.83	0.73	0.256	(0.202)	0.087	0.169
119	9.92	0.73	0.256	(0.201)	0.087	0.169
120	10.00	0.73	0.256	(0.200)	0.087	0.169

121	10.08	0.50	0.175	(0.199)	0.059	0.115
122	10.17	0.50	0.175	(0.198)	0.059	0.115
123	10.25	0.50	0.175	(0.197)	0.059	0.115
124	10.33	0.50	0.175	(0.196)	0.059	0.115
125	10.42	0.50	0.175	(0.195)	0.059	0.115
126	10.50	0.50	0.175	(0.194)	0.059	0.115
127	10.58	0.67	0.233	(0.193)	0.079	0.154
128	10.67	0.67	0.233	(0.192)	0.079	0.154
129	10.75	0.67	0.233	(0.191)	0.079	0.154
130	10.83	0.67	0.233	(0.190)	0.079	0.154
131	10.92	0.67	0.233	(0.189)	0.079	0.154
132	11.00	0.67	0.233	(0.188)	0.079	0.154
133	11.08	0.63	0.221	(0.187)	0.075	0.146
134	11.17	0.63	0.221	(0.186)	0.075	0.146
135	11.25	0.63	0.221	(0.185)	0.075	0.146
136	11.33	0.63	0.221	(0.185)	0.075	0.146
137	11.42	0.63	0.221	(0.184)	0.075	0.146
138	11.50	0.63	0.221	(0.183)	0.075	0.146
139	11.58	0.57	0.198	(0.182)	0.067	0.131
140	11.67	0.57	0.198	(0.181)	0.067	0.131
141	11.75	0.57	0.198	(0.180)	0.067	0.131
142	11.83	0.60	0.210	(0.179)	0.071	0.138
143	11.92	0.60	0.210	(0.178)	0.071	0.138
144	12.00	0.60	0.210	(0.177)	0.071	0.138
145	12.08	0.83	0.291	(0.176)	0.099	0.192
146	12.17	0.83	0.291	(0.176)	0.099	0.192
147	12.25	0.83	0.291	(0.175)	0.099	0.192
148	12.33	0.87	0.303	(0.174)	0.103	0.200
149	12.42	0.87	0.303	(0.173)	0.103	0.200
150	12.50	0.87	0.303	(0.172)	0.103	0.200
151	12.58	0.93	0.326	(0.171)	0.111	0.215
152	12.67	0.93	0.326	(0.170)	0.111	0.215
153	12.75	0.93	0.326	(0.169)	0.111	0.215
154	12.83	0.97	0.338	(0.169)	0.115	0.223
155	12.92	0.97	0.338	(0.168)	0.115	0.223
156	13.00	0.97	0.338	(0.167)	0.115	0.223
157	13.08	1.13	0.396	(0.166)	0.135	0.261
158	13.17	1.13	0.396	(0.165)	0.135	0.261
159	13.25	1.13	0.396	(0.164)	0.135	0.261
160	13.33	1.13	0.396	(0.164)	0.135	0.261
161	13.42	1.13	0.396	(0.163)	0.135	0.261
162	13.50	1.13	0.396	(0.162)	0.135	0.261
163	13.58	0.77	0.268	(0.161)	0.091	0.177
164	13.67	0.77	0.268	(0.160)	0.091	0.177
165	13.75	0.77	0.268	(0.159)	0.091	0.177
166	13.83	0.77	0.268	(0.159)	0.091	0.177
167	13.92	0.77	0.268	(0.158)	0.091	0.177
168	14.00	0.77	0.268	(0.157)	0.091	0.177
169	14.08	0.90	0.314	(0.156)	0.107	0.207
170	14.17	0.90	0.314	(0.155)	0.107	0.207
171	14.25	0.90	0.314	(0.155)	0.107	0.207
172	14.33	0.87	0.303	(0.154)	0.103	0.200
173	14.42	0.87	0.303	(0.153)	0.103	0.200
174	14.50	0.87	0.303	(0.152)	0.103	0.200
175	14.58	0.87	0.303	(0.151)	0.103	0.200
176	14.67	0.87	0.303	(0.151)	0.103	0.200
177	14.75	0.87	0.303	(0.150)	0.103	0.200
178	14.83	0.83	0.291	(0.149)	0.099	0.192
179	14.92	0.83	0.291	(0.148)	0.099	0.192
180	15.00	0.83	0.291	(0.148)	0.099	0.192
181	15.08	0.80	0.279	(0.147)	0.095	0.184
182	15.17	0.80	0.279	(0.146)	0.095	0.184
183	15.25	0.80	0.279	(0.145)	0.095	0.184
184	15.33	0.77	0.268	(0.145)	0.091	0.177
185	15.42	0.77	0.268	(0.144)	0.091	0.177
186	15.50	0.77	0.268	(0.143)	0.091	0.177
187	15.58	0.63	0.221	(0.142)	0.075	0.146
188	15.67	0.63	0.221	(0.142)	0.075	0.146
189	15.75	0.63	0.221	(0.141)	0.075	0.146
190	15.83	0.63	0.221	(0.140)	0.075	0.146
191	15.92	0.63	0.221	(0.140)	0.075	0.146
192	16.00	0.63	0.221	(0.139)	0.075	0.146
193	16.08	0.13	0.047	(0.138)	0.016	0.031
194	16.17	0.13	0.047	(0.137)	0.016	0.031

195	16.25	0.13	0.047	(0.137)	0.016	0.031
196	16.33	0.13	0.047	(0.136)	0.016	0.031
197	16.42	0.13	0.047	(0.135)	0.016	0.031
198	16.50	0.13	0.047	(0.135)	0.016	0.031
199	16.58	0.10	0.035	(0.134)	0.012	0.023
200	16.67	0.10	0.035	(0.133)	0.012	0.023
201	16.75	0.10	0.035	(0.133)	0.012	0.023
202	16.83	0.10	0.035	(0.132)	0.012	0.023
203	16.92	0.10	0.035	(0.131)	0.012	0.023
204	17.00	0.10	0.035	(0.131)	0.012	0.023
205	17.08	0.17	0.058	(0.130)	0.020	0.038
206	17.17	0.17	0.058	(0.129)	0.020	0.038
207	17.25	0.17	0.058	(0.129)	0.020	0.038
208	17.33	0.17	0.058	(0.128)	0.020	0.038
209	17.42	0.17	0.058	(0.127)	0.020	0.038
210	17.50	0.17	0.058	(0.127)	0.020	0.038
211	17.58	0.17	0.058	(0.126)	0.020	0.038
212	17.67	0.17	0.058	(0.125)	0.020	0.038
213	17.75	0.17	0.058	(0.125)	0.020	0.038
214	17.83	0.13	0.047	(0.124)	0.016	0.031
215	17.92	0.13	0.047	(0.124)	0.016	0.031
216	18.00	0.13	0.047	(0.123)	0.016	0.031
217	18.08	0.13	0.047	(0.122)	0.016	0.031
218	18.17	0.13	0.047	(0.122)	0.016	0.031
219	18.25	0.13	0.047	(0.121)	0.016	0.031
220	18.33	0.13	0.047	(0.121)	0.016	0.031
221	18.42	0.13	0.047	(0.120)	0.016	0.031
222	18.50	0.13	0.047	(0.119)	0.016	0.031
223	18.58	0.10	0.035	(0.119)	0.012	0.023
224	18.67	0.10	0.035	(0.118)	0.012	0.023
225	18.75	0.10	0.035	(0.118)	0.012	0.023
226	18.83	0.07	0.023	(0.117)	0.008	0.015
227	18.92	0.07	0.023	(0.117)	0.008	0.015
228	19.00	0.07	0.023	(0.116)	0.008	0.015
229	19.08	0.10	0.035	(0.115)	0.012	0.023
230	19.17	0.10	0.035	(0.115)	0.012	0.023
231	19.25	0.10	0.035	(0.114)	0.012	0.023
232	19.33	0.13	0.047	(0.114)	0.016	0.031
233	19.42	0.13	0.047	(0.113)	0.016	0.031
234	19.50	0.13	0.047	(0.113)	0.016	0.031
235	19.58	0.10	0.035	(0.112)	0.012	0.023
236	19.67	0.10	0.035	(0.112)	0.012	0.023
237	19.75	0.10	0.035	(0.111)	0.012	0.023
238	19.83	0.07	0.023	(0.111)	0.008	0.015
239	19.92	0.07	0.023	(0.110)	0.008	0.015
240	20.00	0.07	0.023	(0.110)	0.008	0.015
241	20.08	0.10	0.035	(0.109)	0.012	0.023
242	20.17	0.10	0.035	(0.109)	0.012	0.023
243	20.25	0.10	0.035	(0.108)	0.012	0.023
244	20.33	0.10	0.035	(0.108)	0.012	0.023
245	20.42	0.10	0.035	(0.107)	0.012	0.023
246	20.50	0.10	0.035	(0.107)	0.012	0.023
247	20.58	0.10	0.035	(0.106)	0.012	0.023
248	20.67	0.10	0.035	(0.106)	0.012	0.023
249	20.75	0.10	0.035	(0.106)	0.012	0.023
250	20.83	0.07	0.023	(0.105)	0.008	0.015
251	20.92	0.07	0.023	(0.105)	0.008	0.015
252	21.00	0.07	0.023	(0.104)	0.008	0.015
253	21.08	0.10	0.035	(0.104)	0.012	0.023
254	21.17	0.10	0.035	(0.103)	0.012	0.023
255	21.25	0.10	0.035	(0.103)	0.012	0.023
256	21.33	0.07	0.023	(0.103)	0.008	0.015
257	21.42	0.07	0.023	(0.102)	0.008	0.015
258	21.50	0.07	0.023	(0.102)	0.008	0.015
259	21.58	0.10	0.035	(0.102)	0.012	0.023
260	21.67	0.10	0.035	(0.101)	0.012	0.023
261	21.75	0.10	0.035	(0.101)	0.012	0.023
262	21.83	0.07	0.023	(0.100)	0.008	0.015
263	21.92	0.07	0.023	(0.100)	0.008	0.015
264	22.00	0.07	0.023	(0.100)	0.008	0.015
265	22.08	0.10	0.035	(0.099)	0.012	0.023
266	22.17	0.10	0.035	(0.099)	0.012	0.023
267	22.25	0.10	0.035	(0.099)	0.012	0.023
268	22.33	0.07	0.023	(0.099)	0.008	0.015

269	22.42	0.07	0.023	(0.098)	0.008	0.015
270	22.50	0.07	0.023	(0.098)	0.008	0.015
271	22.58	0.07	0.023	(0.098)	0.008	0.015
272	22.67	0.07	0.023	(0.097)	0.008	0.015
273	22.75	0.07	0.023	(0.097)	0.008	0.015
274	22.83	0.07	0.023	(0.097)	0.008	0.015
275	22.92	0.07	0.023	(0.097)	0.008	0.015
276	23.00	0.07	0.023	(0.096)	0.008	0.015
277	23.08	0.07	0.023	(0.096)	0.008	0.015
278	23.17	0.07	0.023	(0.096)	0.008	0.015
279	23.25	0.07	0.023	(0.096)	0.008	0.015
280	23.33	0.07	0.023	(0.096)	0.008	0.015
281	23.42	0.07	0.023	(0.095)	0.008	0.015
282	23.50	0.07	0.023	(0.095)	0.008	0.015
283	23.58	0.07	0.023	(0.095)	0.008	0.015
284	23.67	0.07	0.023	(0.095)	0.008	0.015
285	23.75	0.07	0.023	(0.095)	0.008	0.015
286	23.83	0.07	0.023	(0.095)	0.008	0.015
287	23.92	0.07	0.023	(0.095)	0.008	0.015
288	24.00	0.07	0.023	(0.095)	0.008	0.015

(Loss Rate Not Used)

Sum = 100.0 Sum = 23.1

Flood volume = Effective rainfall 1.92 (In)
 times area 1.7 (Ac.) / [(In) / (Ft.)] = 0.3 (Ac.Ft)
 Total soil loss = 0.99 (In)
 Total soil loss = 0.139 (Ac.Ft)
 Total rainfall = 2.91 (In)
 Flood volume = 11715.8 Cubic Feet
 Total soil loss = 6035.4 Cubic Feet

Peak flow rate of this hydrograph = 0.443 (CFS)

+++++
 24 - H O U R S T O R M
 R u n o f f H y d r o g r a p h

 Hydrograph in 5 Minute intervals ((CFS))

Time (h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0001	0.02	Q				
0+10	0.0003	0.03	Q				
0+15	0.0005	0.03	Q				
0+20	0.0007	0.04	Q				
0+25	0.0010	0.04	Q				
0+30	0.0013	0.04	Q				
0+35	0.0015	0.04	Q				
0+40	0.0018	0.04	Q				
0+45	0.0021	0.04	Q				
0+50	0.0024	0.05	Q				
0+55	0.0028	0.05	Q				
1+ 0	0.0031	0.05	Q				
1+ 5	0.0034	0.04	Q				
1+10	0.0037	0.04	Q				
1+15	0.0040	0.04	Q				
1+20	0.0042	0.04	Q				
1+25	0.0045	0.04	Q				
1+30	0.0048	0.04	Q				
1+35	0.0050	0.04	Q				
1+40	0.0053	0.04	Q				
1+45	0.0056	0.04	Q				
1+50	0.0059	0.05	Q				
1+55	0.0063	0.05	Q				
2+ 0	0.0066	0.05	Q				
2+ 5	0.0070	0.05	QV				
2+10	0.0073	0.05	QV				
2+15	0.0077	0.05	QV				
2+20	0.0081	0.05	QV				
2+25	0.0084	0.05	QV				
2+30	0.0088	0.05	QV				
2+35	0.0092	0.06	QV				
2+40	0.0096	0.07	QV				
2+45	0.0101	0.07	QV				

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2+50	0.0105	0.07	QV				
2+55	0.0110	0.07	QV				
3+ 0	0.0114	0.07	QV				
3+ 5	0.0119	0.07	QV				
3+10	0.0123	0.07	QV				
3+15	0.0128	0.07	QV				
3+20	0.0132	0.07	QV				
3+25	0.0137	0.07	Q V				
3+30	0.0141	0.07	Q V				
3+35	0.0146	0.07	Q V				
3+40	0.0150	0.07	Q V				
3+45	0.0155	0.07	Q V				
3+50	0.0160	0.07	Q V				
3+55	0.0165	0.08	Q V				
4+ 0	0.0171	0.08	Q V				
4+ 5	0.0176	0.08	Q V				
4+10	0.0181	0.08	Q V				
4+15	0.0187	0.08	Q V				
4+20	0.0193	0.09	Q V				
4+25	0.0199	0.09	Q V				
4+30	0.0205	0.09	Q V				
4+35	0.0212	0.09	Q V				
4+40	0.0218	0.09	Q V				
4+45	0.0224	0.09	Q V				
4+50	0.0231	0.10	Q V				
4+55	0.0238	0.10	Q V				
5+ 0	0.0245	0.10	Q V				
5+ 5	0.0251	0.09	Q V				
5+10	0.0257	0.08	Q V				
5+15	0.0262	0.08	Q V				
5+20	0.0268	0.09	Q V				
5+25	0.0274	0.09	Q V				
5+30	0.0281	0.09	Q V				
5+35	0.0288	0.10	Q V				
5+40	0.0295	0.10	Q V				
5+45	0.0302	0.10	Q V				
5+50	0.0309	0.10	Q V				
5+55	0.0316	0.10	Q V				
6+ 0	0.0323	0.10	Q V				
6+ 5	0.0331	0.11	Q V				
6+10	0.0339	0.12	Q V				
6+15	0.0347	0.12	Q V				
6+20	0.0355	0.12	Q V				
6+25	0.0364	0.12	Q V				
6+30	0.0372	0.12	Q V				
6+35	0.0380	0.13	Q V				
6+40	0.0389	0.13	Q V				
6+45	0.0398	0.13	Q V				
6+50	0.0407	0.13	Q V				
6+55	0.0416	0.13	Q V				
7+ 0	0.0425	0.13	Q V				
7+ 5	0.0434	0.13	Q V				
7+10	0.0443	0.13	Q V				
7+15	0.0452	0.13	Q V				
7+20	0.0462	0.14	Q V				
7+25	0.0471	0.14	Q V				
7+30	0.0481	0.14	Q V				
7+35	0.0492	0.15	Q V				
7+40	0.0503	0.16	Q V				
7+45	0.0513	0.16	Q V				
7+50	0.0525	0.17	Q V				
7+55	0.0536	0.17	Q V				
8+ 0	0.0548	0.17	Q V				
8+ 5	0.0561	0.19	Q V				
8+10	0.0574	0.20	Q V				
8+15	0.0588	0.20	Q V				
8+20	0.0601	0.20	Q V				
8+25	0.0615	0.20	Q V				
8+30	0.0628	0.20	Q V				
8+35	0.0642	0.20	Q V				
8+40	0.0657	0.21	Q V				
8+45	0.0671	0.21	Q V				
8+50	0.0686	0.22	Q V				
8+55	0.0701	0.22	Q V				

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9+ 0	0.0717	0.22	Q	V					
9+ 5	0.0733	0.24	Q	V					
9+10	0.0750	0.25	Q	V					
9+15	0.0767	0.25	Q	V					
9+20	0.0785	0.26	Q	V					
9+25	0.0803	0.26	Q	V					
9+30	0.0821	0.26	Q	V					
9+35	0.0839	0.27	Q	V					
9+40	0.0858	0.27	Q	V					
9+45	0.0877	0.27	Q	V					
9+50	0.0896	0.28	Q	V					
9+55	0.0916	0.29	Q	V					
10+ 0	0.0936	0.29	Q	V					
10+ 5	0.0951	0.22	Q	V					
10+10	0.0964	0.20	Q	V					
10+15	0.0978	0.20	Q	V					
10+20	0.0991	0.20	Q	V					
10+25	0.1005	0.20	Q	V					
10+30	0.1018	0.20	Q	V					
10+35	0.1035	0.24	Q	V					
10+40	0.1053	0.26	Q	V					
10+45	0.1071	0.26	Q	V					
10+50	0.1089	0.26	Q	V					
10+55	0.1107	0.26	Q	V					
11+ 0	0.1125	0.26	Q	V					
11+ 5	0.1142	0.25	Q	V					
11+10	0.1159	0.25	Q	V					
11+15	0.1176	0.25	Q	V					
11+20	0.1193	0.25	Q	V					
11+25	0.1210	0.25	Q	V					
11+30	0.1227	0.25	Q	V					
11+35	0.1243	0.23	Q	V					
11+40	0.1258	0.22	Q	V					
11+45	0.1273	0.22	Q	V					
11+50	0.1289	0.23	Q	V					
11+55	0.1305	0.23	Q	V					
12+ 0	0.1321	0.23	Q	V					
12+ 5	0.1342	0.30	Q	V					
12+10	0.1364	0.33	Q	V					
12+15	0.1387	0.33	Q	V					
12+20	0.1410	0.33	Q	V					
12+25	0.1433	0.34	Q	V					
12+30	0.1457	0.34	Q	V					
12+35	0.1481	0.36	Q	V					
12+40	0.1506	0.36	Q	V					
12+45	0.1531	0.36	Q	V					
12+50	0.1557	0.37	Q	V					
12+55	0.1583	0.38	Q	V					
13+ 0	0.1609	0.38	Q	V					
13+ 5	0.1638	0.42	Q	V					
13+10	0.1669	0.44	Q	V					
13+15	0.1699	0.44	Q	V					
13+20	0.1730	0.44	Q	V					
13+25	0.1760	0.44	Q	V					
13+30	0.1791	0.44	Q	V					
13+35	0.1814	0.34	Q	V					
13+40	0.1835	0.30	Q	V					
13+45	0.1855	0.30	Q	V					
13+50	0.1876	0.30	Q	V					
13+55	0.1897	0.30	Q	V					
14+ 0	0.1917	0.30	Q	V					
14+ 5	0.1940	0.34	Q	V					
14+10	0.1965	0.35	Q	V					
14+15	0.1989	0.35	Q	V					
14+20	0.2012	0.34	Q	V					
14+25	0.2036	0.34	Q	V					
14+30	0.2059	0.34	Q	V					
14+35	0.2082	0.34	Q	V					
14+40	0.2106	0.34	Q	V					
14+45	0.2129	0.34	Q	V					
14+50	0.2152	0.33	Q	V					
14+55	0.2174	0.33	Q	V					
15+ 0	0.2196	0.33	Q	V					
15+ 5	0.2218	0.32	Q	V					

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15+10	0.2240	0.31	IQ				V	
15+15	0.2261	0.31	IQ				V	
15+20	0.2282	0.30	IQ				V	
15+25	0.2303	0.30	IQ				V	
15+30	0.2323	0.30	IQ				V	
15+35	0.2341	0.26	IQ				V	
15+40	0.2358	0.25	Q				V	
15+45	0.2375	0.25	Q				V	
15+50	0.2393	0.25	Q				V	
15+55	0.2410	0.25	Q				V	
16+ 0	0.2427	0.25	Q				V	
16+ 5	0.2434	0.11	Q				V	
16+10	0.2438	0.05	Q				V	
16+15	0.2441	0.05	Q				V	
16+20	0.2445	0.05	Q				V	
16+25	0.2448	0.05	Q				V	
16+30	0.2452	0.05	Q				V	
16+35	0.2455	0.04	Q				V	
16+40	0.2458	0.04	Q				V	
16+45	0.2460	0.04	Q				V	
16+50	0.2463	0.04	Q				V	
16+55	0.2466	0.04	Q				V	
17+ 0	0.2468	0.04	Q				V	
17+ 5	0.2472	0.06	Q				V	
17+10	0.2477	0.07	Q				V	
17+15	0.2481	0.07	Q				V	
17+20	0.2486	0.07	Q				V	
17+25	0.2490	0.07	Q				V	
17+30	0.2495	0.07	Q				V	
17+35	0.2499	0.07	Q				V	
17+40	0.2504	0.07	Q				V	
17+45	0.2508	0.07	Q				V	
17+50	0.2512	0.06	Q				V	
17+55	0.2516	0.05	Q				V	
18+ 0	0.2519	0.05	Q				V	
18+ 5	0.2523	0.05	Q				V	
18+10	0.2526	0.05	Q				V	
18+15	0.2530	0.05	Q				V	
18+20	0.2533	0.05	Q				V	
18+25	0.2537	0.05	Q				V	
18+30	0.2541	0.05	Q				V	
18+35	0.2544	0.04	Q				V	
18+40	0.2546	0.04	Q				V	
18+45	0.2549	0.04	Q				V	
18+50	0.2551	0.03	Q				V	
18+55	0.2553	0.03	Q				V	
19+ 0	0.2555	0.03	Q				V	
19+ 5	0.2557	0.04	Q				V	
19+10	0.2560	0.04	Q				V	
19+15	0.2562	0.04	Q				V	
19+20	0.2566	0.05	Q				V	
19+25	0.2569	0.05	Q				V	
19+30	0.2573	0.05	Q				V	
19+35	0.2576	0.04	Q				V	
19+40	0.2579	0.04	Q				V	
19+45	0.2581	0.04	Q				V	
19+50	0.2583	0.03	Q				V	
19+55	0.2585	0.03	Q				V	
20+ 0	0.2587	0.03	Q				V	
20+ 5	0.2589	0.04	Q				V	
20+10	0.2592	0.04	Q				V	
20+15	0.2595	0.04	Q				V	
20+20	0.2597	0.04	Q				V	
20+25	0.2600	0.04	Q				V	
20+30	0.2603	0.04	Q				V	
20+35	0.2605	0.04	Q				V	
20+40	0.2608	0.04	Q				V	
20+45	0.2611	0.04	Q				V	
20+50	0.2613	0.03	Q				V	
20+55	0.2615	0.03	Q				V	
21+ 0	0.2616	0.03	Q				V	
21+ 5	0.2619	0.04	Q				V	
21+10	0.2622	0.04	Q				V	
21+15	0.2624	0.04	Q				V	

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

21+20	0.2626	0.03	Q					V
21+25	0.2628	0.03	Q					V
21+30	0.2630	0.03	Q					V
21+35	0.2632	0.04	Q					V
21+40	0.2635	0.04	Q					V
21+45	0.2638	0.04	Q					V
21+50	0.2640	0.03	Q					V
21+55	0.2642	0.03	Q					V
22+ 0	0.2643	0.03	Q					V
22+ 5	0.2646	0.04	Q					V
22+10	0.2648	0.04	Q					V
22+15	0.2651	0.04	Q					V
22+20	0.2653	0.03	Q					V
22+25	0.2655	0.03	Q					V
22+30	0.2657	0.03	Q					V
22+35	0.2659	0.03	Q					V
22+40	0.2660	0.03	Q					V
22+45	0.2662	0.03	Q					V
22+50	0.2664	0.03	Q					V
22+55	0.2666	0.03	Q					V
23+ 0	0.2668	0.03	Q					V
23+ 5	0.2669	0.03	Q					V
23+10	0.2671	0.03	Q					V
23+15	0.2673	0.03	Q					V
23+20	0.2675	0.03	Q					V
23+25	0.2677	0.03	Q					V
23+30	0.2678	0.03	Q					V
23+35	0.2680	0.03	Q					V
23+40	0.2682	0.03	Q					V
23+45	0.2684	0.03	Q					V
23+50	0.2685	0.03	Q					V
23+55	0.2687	0.03	Q					V
24+ 0	0.2689	0.03	Q					V
24+ 5	0.2690	0.01	Q					V

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

- **Area 'A' – 100 Year 1 Hour Post-Development Condition – Unit Hydrograph**

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Unit Hydrograph Analysis

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 Study date 07/23/20 File: pr1001100.out

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Riverside County Synthetic Unit Hydrology Method
 RCFC & WCD Manual date - April 1978

Program License Serial Number 6407

 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

English Units used in output format

 FARM MARKET EXPANSION
 PROPOSED CONDITION UNIT HYDROGRAPH - 100 YEAR 1 HOUR STORM
 WMB & ASSOCIATES, JULY 2020
 BY: BRIAN LOWELL, PE

 Drainage Area = 1.68(Ac.) = 0.003 Sq. Mi.
 Drainage Area for Depth-Area Areal Adjustment = 1.68(Ac.) = 0.003 Sq. Mi.
 Length along longest watercourse = 483.00(Ft.)
 Length along longest watercourse measured to centroid = 149.00(Ft.)
 Length along longest watercourse = 0.091 Mi.
 Length along longest watercourse measured to centroid = 0.028 Mi.
 Difference in elevation = 7.90(Ft.)
 Slope along watercourse = 86.3602 Ft./Mi.
 Average Manning's 'N' = 0.015
 Lag time = 0.016 Hr.
 Lag time = 0.96 Min.
 25% of lag time = 0.24 Min.
 40% of lag time = 0.38 Min.
 Unit time = 5.00 Min.
 Duration of storm = 1 Hour(s)
 User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall(In) [2]	Weighting[1*2]
1.68	0.50	0.84

100 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall(In) [2]	Weighting[1*2]
1.68	1.20	2.02

STORM EVENT (YEAR) = 100.00
 Area Averaged 2-Year Rainfall = 0.500(In)
 Area Averaged 100-Year Rainfall = 1.200(In)

Point rain (area averaged) = 1.200(In)
 Areal adjustment factor = 100.00 %
 Adjusted average point rain = 1.200(In)

Sub-Area Data:
 Area(Ac.) Runoff Index Impervious %
 1.680 56.00 0.700
 Total Area Entered = 1.68(Ac.)

RI	RI	Infil. Rate	Impervious	Adj. Infil. Rate	Area%	F
AMC2	AMC-3	(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
56.0	74.8	0.305	0.700	0.113	1.000	0.113
						Sum (F) = 0.113

Area averaged mean soil loss (F) (In/Hr) = 0.113

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

- **Area 'A' – 100 Year 3 Hour Post-Development Condition – Unit Hydrograph**

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Unit Hydrograph Analysis

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Study date 07/23/20 File: pr1003100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6407

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

FARM MARKET EXPANSION
PROPOSED CONDITION UNIT HYDROGRAPH - 100 YEAR 3 HOUR STORM
WMB & ASSOCIATES, JULY 2020
BY: BRIAN LOWELL, PE

Drainage Area = 1.68(Ac.) = 0.003 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 1.68(Ac.) = 0.003 Sq. Mi.
Length along longest watercourse = 483.00(Ft.)
Length along longest watercourse measured to centroid = 149.00(Ft.)
Length along longest watercourse = 0.091 Mi.
Length along longest watercourse measured to centroid = 0.028 Mi.
Difference in elevation = 7.90(Ft.)
Slope along watercourse = 86.3602 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.016 Hr.
Lag time = 0.96 Min.
25% of lag time = 0.24 Min.
40% of lag time = 0.38 Min.
Unit time = 5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.) [1] Rainfall(In) [2] Weighting[1*2]
1.68 0.80 1.34

100 YEAR Area rainfall data:

Area(Ac.) [1] Rainfall(In) [2] Weighting[1*2]
1.68 1.80 3.02

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 0.800(In)
Area Averaged 100-Year Rainfall = 1.800(In)

Point rain (area averaged) = 1.800(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 1.800(In)

Sub-Area Data:
Area(Ac.) Runoff Index Impervious %
1.680 56.00 0.700
Total Area Entered = 1.68(Ac.)

RI RI Infil. Rate Impervious Adj. Infil. Rate Area% F

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

AMC2	AMC-3	(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
56.0	74.8	0.305	0.700	0.113	1.000	0.113
						Sum (F) = 0.113

Area averaged mean soil loss (F) (In/Hr) = 0.113
 Minimum soil loss rate ((In/Hr)) = 0.056
 (for 24 hour storm duration)
 Soil loss rate (decimal) = 0.340

Unit Hydrograph
 VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	519.885	71.883
2	0.167	1039.769	28.117
		Sum = 100.000	Sum= 1.693

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max Low	Effective (In/Hr)
1	0.08	1.30	(0.113) 0.095	0.185
2	0.17	1.30	(0.113) 0.095	0.185
3	0.25	1.10	(0.113) 0.081	0.157
4	0.33	1.50	(0.113) 0.110	0.214
5	0.42	1.50	(0.113) 0.110	0.214
6	0.50	1.80	0.113 (0.132)	0.276
7	0.58	1.50	(0.113) 0.110	0.214
8	0.67	1.80	0.113 (0.132)	0.276
9	0.75	1.80	0.113 (0.132)	0.276
10	0.83	1.50	(0.113) 0.110	0.214
11	0.92	1.60	0.113 (0.118)	0.233
12	1.00	1.80	0.113 (0.132)	0.276
13	1.08	2.20	0.113 (0.162)	0.362
14	1.17	2.20	0.113 (0.162)	0.362
15	1.25	2.20	0.113 (0.162)	0.362
16	1.33	2.00	0.113 (0.147)	0.319
17	1.42	2.60	0.113 (0.191)	0.449
18	1.50	2.70	0.113 (0.198)	0.470
19	1.58	2.40	0.113 (0.176)	0.405
20	1.67	2.70	0.113 (0.198)	0.470
21	1.75	3.30	0.113 (0.242)	0.600
22	1.83	3.10	0.113 (0.228)	0.557
23	1.92	2.90	0.113 (0.213)	0.513
24	2.00	3.00	0.113 (0.220)	0.535
25	2.08	3.10	0.113 (0.228)	0.557
26	2.17	4.20	0.113 (0.308)	0.794
27	2.25	5.00	0.113 (0.367)	0.967
28	2.33	3.50	0.113 (0.257)	0.643
29	2.42	6.80	0.113 (0.499)	1.356
30	2.50	7.30	0.113 (0.536)	1.464
31	2.58	8.20	0.113 (0.602)	1.658
32	2.67	5.90	0.113 (0.433)	1.161
33	2.75	2.00	0.113 (0.147)	0.319
34	2.83	1.80	0.113 (0.132)	0.276
35	2.92	1.80	0.113 (0.132)	0.276
36	3.00	0.60	(0.113) 0.044	0.086

(Loss Rate Not Used)
 Sum = 100.0
 Flood volume = Effective rainfall 1.47(In)
 times area 1.7(Ac.) / [(In)/(Ft.)] = 0.2(Ac.Ft)
 Total soil loss = 0.33(In)
 Total soil loss = 0.046(Ac.Ft)
 Total rainfall = 1.80(In)
 Flood volume = 8984.9 Cubic Feet
 Total soil loss = 1992.1 Cubic Feet

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Peak flow rate of this hydrograph = 2.716(CFS)

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3 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time (h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0016	0.23	Q				
0+10	0.0037	0.31	VQ				
0+15	0.0056	0.28	IQ				
0+20	0.0079	0.34	IQ				
0+25	0.0104	0.36	IQV				
0+30	0.0135	0.44	IQV				
0+35	0.0162	0.39	IQ V				
0+40	0.0192	0.44	IQ V				
0+45	0.0224	0.47	IQ V				
0+50	0.0251	0.39	IQ V				
0+55	0.0277	0.39	IQ V				
1+ 0	0.0308	0.45	IQ V				
1+ 5	0.0348	0.57	IQ V				
1+10	0.0390	0.61	IQ V				
1+15	0.0432	0.61	IQ V				
1+20	0.0471	0.56	IQ V				
1+25	0.0519	0.70	IQ V				
1+30	0.0573	0.79	IQ V				
1+35	0.0622	0.72	IQ V				
1+40	0.0675	0.77	IQ V				
1+45	0.0741	0.95	IQ V				
1+50	0.0807	0.96	IQ V				
1+55	0.0868	0.89	IQ V				
2+ 0	0.0930	0.90	IQ V				
2+ 5	0.0994	0.93	IQ V				
2+10	0.1079	1.23	IQ V				
2+15	0.1186	1.56	IQ V				
2+20	0.1272	1.24	IQ V				
2+25	0.1407	1.96	IQ V				
2+30	0.1574	2.43	IQ V				
2+35	0.1761	2.72	IQ V				
2+40	0.1913	2.20	IQ V				
2+45	0.1978	0.94	IQ V				
2+50	0.2011	0.49	IQ V				
2+55	0.2044	0.47	IQ V				
3+ 0	0.2060	0.24	IQ V				
3+ 5	0.2063	0.04	IQ V				

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

- **Area 'A' – 100 Year 6 Hour Post-Development Condition – Unit Hydrograph**

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
 Study date 07/23/20 File: pr1006100.out

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Riverside County Synthetic Unit Hydrology Method
 RCFC & WCD Manual date - April 1978

Program License Serial Number 6407

English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

English Units used in output format

FARM MARKET EXPANSION
 PROPOSED CONDITION UNIT HYDROGRAPH - 100 YEAR 6 HOUR STORM
 WMB & ASSOCIATES, JULY 2020
 BY: BRIAN LOWELL, PE

 Drainage Area = 1.68(Ac.) = 0.003 Sq. Mi.
 Drainage Area for Depth-Area Areal Adjustment = 1.68(Ac.) = 0.003 Sq. Mi.
 Length along longest watercourse = 483.00(Ft.)
 Length along longest watercourse measured to centroid = 149.00(Ft.)
 Length along longest watercourse = 0.091 Mi.
 Length along longest watercourse measured to centroid = 0.028 Mi.
 Difference in elevation = 7.90(Ft.)
 Slope along watercourse = 86.3602 Ft./Mi.
 Average Manning's 'N' = 0.015
 Lag time = 0.016 Hr.
 Lag time = 0.96 Min.
 25% of lag time = 0.24 Min.
 40% of lag time = 0.38 Min.
 Unit time = 5.00 Min.
 Duration of storm = 6 Hour(s)
 User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall(In) [2]	Weighting[1*2]
1.68	1.20	2.02

100 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall(In) [2]	Weighting[1*2]
1.68	2.50	4.20

STORM EVENT (YEAR) = 100.00
 Area Averaged 2-Year Rainfall = 1.200(In)
 Area Averaged 100-Year Rainfall = 2.500(In)

Point rain (area averaged) = 2.500(In)
 Areal adjustment factor = 100.00 %
 Adjusted average point rain = 2.500(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
1.680	56.00	0.700
Total Area Entered = 1.68(Ac.)		

RI RI Infil. Rate Impervious Adj. Infil. Rate Area% F

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

AMC2 AMC-3 (In/Hr) (Dec.%) (In/Hr) (Dec.) (In/Hr)
 56.0 74.8 0.305 0.700 0.113 1.000 0.113
 Sum (F) = 0.113
 Area averaged mean soil loss (F) (In/Hr) = 0.113
 Minimum soil loss rate ((In/Hr)) = 0.056
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.340

Unit Hydrograph
 VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	519.885	71.883
2	0.167	1039.769	28.117
		Sum = 100.000	Sum= 1.693

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate (In./Hr) Max	Loss rate (In./Hr) Low	Effective (In/Hr)
1	0.08	0.150	(0.113)	0.051	0.099
2	0.17	0.180	(0.113)	0.061	0.119
3	0.25	0.180	(0.113)	0.061	0.119
4	0.33	0.180	(0.113)	0.061	0.119
5	0.42	0.180	(0.113)	0.061	0.119
6	0.50	0.210	(0.113)	0.071	0.139
7	0.58	0.210	(0.113)	0.071	0.139
8	0.67	0.210	(0.113)	0.071	0.139
9	0.75	0.210	(0.113)	0.071	0.139
10	0.83	0.210	(0.113)	0.071	0.139
11	0.92	0.210	(0.113)	0.071	0.139
12	1.00	0.240	(0.113)	0.082	0.158
13	1.08	0.240	(0.113)	0.082	0.158
14	1.17	0.240	(0.113)	0.082	0.158
15	1.25	0.240	(0.113)	0.082	0.158
16	1.33	0.240	(0.113)	0.082	0.158
17	1.42	0.240	(0.113)	0.082	0.158
18	1.50	0.240	(0.113)	0.082	0.158
19	1.58	0.240	(0.113)	0.082	0.158
20	1.67	0.240	(0.113)	0.082	0.158
21	1.75	0.240	(0.113)	0.082	0.158
22	1.83	0.240	(0.113)	0.082	0.158
23	1.92	0.240	(0.113)	0.082	0.158
24	2.00	0.270	(0.113)	0.092	0.178
25	2.08	0.240	(0.113)	0.082	0.158
26	2.17	0.270	(0.113)	0.092	0.178
27	2.25	0.270	(0.113)	0.092	0.178
28	2.33	0.270	(0.113)	0.092	0.178
29	2.42	0.270	(0.113)	0.092	0.178
30	2.50	0.270	(0.113)	0.092	0.178
31	2.58	0.270	(0.113)	0.092	0.178
32	2.67	0.270	(0.113)	0.092	0.178
33	2.75	0.300	(0.113)	0.102	0.198
34	2.83	0.300	(0.113)	0.102	0.198
35	2.92	0.300	(0.113)	0.102	0.198
36	3.00	0.300	(0.113)	0.102	0.198
37	3.08	0.300	(0.113)	0.102	0.198
38	3.17	0.330	(0.113)	0.112	0.218
39	3.25	0.330	(0.113)	0.112	0.218
40	3.33	0.330	(0.113)	0.112	0.218
41	3.42	0.360	0.113	(0.122)	0.247
42	3.50	0.390	0.113	(0.133)	0.277
43	3.58	0.420	0.113	(0.143)	0.307
44	3.67	0.420	0.113	(0.143)	0.307
45	3.75	0.450	0.113	(0.153)	0.337
46	3.83	0.450	0.113	(0.153)	0.337

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

47	3.92	1.60	0.480	0.113	(0.163)	0.367
48	4.00	1.60	0.480	0.113	(0.163)	0.367
49	4.08	1.70	0.510	0.113	(0.173)	0.397
50	4.17	1.80	0.540	0.113	(0.184)	0.427
51	4.25	1.90	0.570	0.113	(0.194)	0.457
52	4.33	2.00	0.600	0.113	(0.204)	0.487
53	4.42	2.10	0.630	0.113	(0.214)	0.517
54	4.50	2.10	0.630	0.113	(0.214)	0.517
55	4.58	2.20	0.660	0.113	(0.224)	0.547
56	4.67	2.30	0.690	0.113	(0.235)	0.577
57	4.75	2.40	0.720	0.113	(0.245)	0.607
58	4.83	2.40	0.720	0.113	(0.245)	0.607
59	4.92	2.50	0.750	0.113	(0.255)	0.637
60	5.00	2.60	0.780	0.113	(0.265)	0.667
61	5.08	3.10	0.930	0.113	(0.316)	0.817
62	5.17	3.60	1.080	0.113	(0.367)	0.967
63	5.25	3.90	1.170	0.113	(0.398)	1.057
64	5.33	4.20	1.260	0.113	(0.428)	1.147
65	5.42	4.70	1.410	0.113	(0.479)	1.297
66	5.50	5.60	1.680	0.113	(0.571)	1.567
67	5.58	1.90	0.570	0.113	(0.194)	0.457
68	5.67	0.90	0.270	(0.113)	0.092	0.178
69	5.75	0.60	0.180	(0.113)	0.061	0.119
70	5.83	0.50	0.150	(0.113)	0.051	0.099
71	5.92	0.30	0.090	(0.113)	0.031	0.059
72	6.00	0.20	0.060	(0.113)	0.020	0.040

(Loss Rate Not Used)

Sum = 100.0 Sum = 23.3

Flood volume = Effective rainfall 1.94 (In)
times area 1.7 (Ac.) / [(In) / (Ft.)] = 0.3 (Ac.Ft)
Total soil loss = 0.56 (In)
Total soil loss = 0.078 (Ac.Ft)
Total rainfall = 2.50 (In)
Flood volume = 11855.4 Cubic Feet
Total soil loss = 3390.5 Cubic Feet

Peak flow rate of this hydrograph = 2.526 (CFS)

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6 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time (h+m)	Volume Ac.Ft	Q (CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0008	0.12	Q				
0+10	0.0022	0.19	Q				
0+15	0.0035	0.20	Q				
0+20	0.0049	0.20	Q				
0+25	0.0063	0.20	Q				
0+30	0.0079	0.23	QV				
0+35	0.0095	0.23	QV				
0+40	0.0111	0.23	QV				
0+45	0.0127	0.23	QV				
0+50	0.0143	0.23	Q V				
0+55	0.0159	0.23	Q V				
1+ 0	0.0177	0.26	IQV				
1+ 5	0.0196	0.27	IQV				
1+10	0.0214	0.27	IQ V				
1+15	0.0233	0.27	IQ V				
1+20	0.0251	0.27	IQ V				
1+25	0.0270	0.27	IQ V				
1+30	0.0288	0.27	IQ V				
1+35	0.0307	0.27	IQ V				
1+40	0.0325	0.27	IQ V				
1+45	0.0344	0.27	IQ V				
1+50	0.0362	0.27	IQ V				
1+55	0.0381	0.27	IQ V				
2+ 0	0.0401	0.29	IQ V				
2+ 5	0.0420	0.28	IQ V				
2+10	0.0440	0.29	IQ V				
2+15	0.0461	0.30	IQ V				

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2+20	0.0482	0.30	Q	V						
2+25	0.0502	0.30	Q	V						
2+30	0.0523	0.30	Q	V						
2+35	0.0544	0.30	Q	V						
2+40	0.0565	0.30	Q	V						
2+45	0.0587	0.33	Q	V						
2+50	0.0610	0.34	Q	V						
2+55	0.0633	0.34	Q	V						
3+ 0	0.0656	0.34	Q	V						
3+ 5	0.0680	0.34	Q	V						
3+10	0.0704	0.36	Q	V						
3+15	0.0730	0.37	Q	V						
3+20	0.0755	0.37	Q	V						
3+25	0.0783	0.40	Q	V						
3+30	0.0814	0.45	Q	V						
3+35	0.0849	0.51	Q		V					
3+40	0.0885	0.52	Q		V					
3+45	0.0923	0.56	Q		V					
3+50	0.0963	0.57	Q		V					
3+55	0.1004	0.61	Q		V					
4+ 0	0.1047	0.62	Q		V					
4+ 5	0.1093	0.66	Q		V					
4+10	0.1141	0.71	Q		V					
4+15	0.1194	0.76	Q		V					
4+20	0.1250	0.81	Q		V					
4+25	0.1309	0.86	Q		V					
4+30	0.1369	0.88	Q		V					
4+35	0.1432	0.91	Q		V					
4+40	0.1498	0.96	Q		V					
4+45	0.1568	1.01	Q		V					
4+50	0.1639	1.03	Q		V					
4+55	0.1712	1.06	Q		V					
5+ 0	0.1789	1.12	Q		V					
5+ 5	0.1880	1.31	Q		V					
5+10	0.1988	1.57	Q		V					
5+15	0.2108	1.75	Q		V					
5+20	0.2239	1.90	Q		V					
5+25	0.2385	2.13	Q		V					
5+30	0.2559	2.53	Q		V					
5+35	0.2649	1.30	Q		V					
5+40	0.2679	0.43	Q		V					
5+45	0.2695	0.23	Q		V					
5+50	0.2707	0.18	Q		V					
5+55	0.2715	0.12	Q		V					
6+ 0	0.2720	0.08	Q		V					
6+ 5	0.2722	0.02	Q		V					

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- **Area 'A' – 100 Year 24 Hour Post-Development Condition – Unit Hydrograph**

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Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
 Study date 07/23/20 File: pr10024100.out

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Riverside County Synthetic Unit Hydrology Method
 RCFC & WCD Manual date - April 1978

Program License Serial Number 6407

English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

English Units used in output format

FARM MARKET EXPANSION
 PROPOSED CONDITION UNIT HYDROGRAPH - 100 YEAR 24 HOUR STORM
 WMB & ASSOCIATES, JULY 2020
 BY: BRIAN LOWELL, PE

 Drainage Area = 1.68(Ac.) = 0.003 Sq. Mi.
 Drainage Area for Depth-Area Areal Adjustment = 1.68(Ac.) = 0.003 Sq. Mi.
 Length along longest watercourse = 483.00(Ft.)
 Length along longest watercourse measured to centroid = 149.00(Ft.)
 Length along longest watercourse = 0.091 Mi.
 Length along longest watercourse measured to centroid = 0.028 Mi.
 Difference in elevation = 7.90(Ft.)
 Slope along watercourse = 86.3602 Ft./Mi.
 Average Manning's 'N' = 0.015
 Lag time = 0.016 Hr.
 Lag time = 0.96 Min.
 25% of lag time = 0.24 Min.
 40% of lag time = 0.38 Min.
 Unit time = 5.00 Min.
 Duration of storm = 24 Hour(s)
 User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall(In) [2]	Weighting[1*2]
1.68	1.80	3.02

100 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall(In) [2]	Weighting[1*2]
1.68	4.50	7.56

STORM EVENT (YEAR) = 100.00
 Area Averaged 2-Year Rainfall = 1.800(In)
 Area Averaged 100-Year Rainfall = 4.500(In)

Point rain (area averaged) = 4.500(In)
 Areal adjustment factor = 100.00 %
 Adjusted average point rain = 4.500(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
1.680	56.00	0.700
Total Area Entered = 1.68(Ac.)		

RI RI Infil. Rate Impervious Adj. Infil. Rate Area% F

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AMC2	AMC-3	(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
56.0	74.8	0.305	0.700	0.113	1.000	0.113
					Sum (F) =	0.113

Area averaged mean soil loss (F) (In/Hr) = 0.113
 Minimum soil loss rate ((In/Hr)) = 0.056
 (for 24 hour storm duration)
 Soil loss rate (decimal) = 0.340

Unit Hydrograph
 VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	519.885	71.883
2	0.167	1039.769	28.117
		Sum = 100.000	Sum= 1.693

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr)		Effective (In/Hr)
				Max	Low	
1	0.08	0.07	0.036	(0.200)	0.012	0.024
2	0.17	0.07	0.036	(0.200)	0.012	0.024
3	0.25	0.07	0.036	(0.199)	0.012	0.024
4	0.33	0.10	0.054	(0.198)	0.018	0.036
5	0.42	0.10	0.054	(0.197)	0.018	0.036
6	0.50	0.10	0.054	(0.196)	0.018	0.036
7	0.58	0.10	0.054	(0.196)	0.018	0.036
8	0.67	0.10	0.054	(0.195)	0.018	0.036
9	0.75	0.10	0.054	(0.194)	0.018	0.036
10	0.83	0.13	0.072	(0.193)	0.024	0.048
11	0.92	0.13	0.072	(0.193)	0.024	0.048
12	1.00	0.13	0.072	(0.192)	0.024	0.048
13	1.08	0.10	0.054	(0.191)	0.018	0.036
14	1.17	0.10	0.054	(0.190)	0.018	0.036
15	1.25	0.10	0.054	(0.190)	0.018	0.036
16	1.33	0.10	0.054	(0.189)	0.018	0.036
17	1.42	0.10	0.054	(0.188)	0.018	0.036
18	1.50	0.10	0.054	(0.187)	0.018	0.036
19	1.58	0.10	0.054	(0.187)	0.018	0.036
20	1.67	0.10	0.054	(0.186)	0.018	0.036
21	1.75	0.10	0.054	(0.185)	0.018	0.036
22	1.83	0.13	0.072	(0.184)	0.024	0.048
23	1.92	0.13	0.072	(0.184)	0.024	0.048
24	2.00	0.13	0.072	(0.183)	0.024	0.048
25	2.08	0.13	0.072	(0.182)	0.024	0.048
26	2.17	0.13	0.072	(0.181)	0.024	0.048
27	2.25	0.13	0.072	(0.181)	0.024	0.048
28	2.33	0.13	0.072	(0.180)	0.024	0.048
29	2.42	0.13	0.072	(0.179)	0.024	0.048
30	2.50	0.13	0.072	(0.178)	0.024	0.048
31	2.58	0.17	0.090	(0.178)	0.031	0.059
32	2.67	0.17	0.090	(0.177)	0.031	0.059
33	2.75	0.17	0.090	(0.176)	0.031	0.059
34	2.83	0.17	0.090	(0.176)	0.031	0.059
35	2.92	0.17	0.090	(0.175)	0.031	0.059
36	3.00	0.17	0.090	(0.174)	0.031	0.059
37	3.08	0.17	0.090	(0.173)	0.031	0.059
38	3.17	0.17	0.090	(0.173)	0.031	0.059
39	3.25	0.17	0.090	(0.172)	0.031	0.059
40	3.33	0.17	0.090	(0.171)	0.031	0.059
41	3.42	0.17	0.090	(0.170)	0.031	0.059
42	3.50	0.17	0.090	(0.170)	0.031	0.059
43	3.58	0.17	0.090	(0.169)	0.031	0.059
44	3.67	0.17	0.090	(0.168)	0.031	0.059
45	3.75	0.17	0.090	(0.168)	0.031	0.059
46	3.83	0.20	0.108	(0.167)	0.037	0.071

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47	3.92	0.20	0.108	(0.166)	0.037	0.071
48	4.00	0.20	0.108	(0.166)	0.037	0.071
49	4.08	0.20	0.108	(0.165)	0.037	0.071
50	4.17	0.20	0.108	(0.164)	0.037	0.071
51	4.25	0.20	0.108	(0.163)	0.037	0.071
52	4.33	0.23	0.126	(0.163)	0.043	0.083
53	4.42	0.23	0.126	(0.162)	0.043	0.083
54	4.50	0.23	0.126	(0.161)	0.043	0.083
55	4.58	0.23	0.126	(0.161)	0.043	0.083
56	4.67	0.23	0.126	(0.160)	0.043	0.083
57	4.75	0.23	0.126	(0.159)	0.043	0.083
58	4.83	0.27	0.144	(0.159)	0.049	0.095
59	4.92	0.27	0.144	(0.158)	0.049	0.095
60	5.00	0.27	0.144	(0.157)	0.049	0.095
61	5.08	0.20	0.108	(0.157)	0.037	0.071
62	5.17	0.20	0.108	(0.156)	0.037	0.071
63	5.25	0.20	0.108	(0.155)	0.037	0.071
64	5.33	0.23	0.126	(0.154)	0.043	0.083
65	5.42	0.23	0.126	(0.154)	0.043	0.083
66	5.50	0.23	0.126	(0.153)	0.043	0.083
67	5.58	0.27	0.144	(0.152)	0.049	0.095
68	5.67	0.27	0.144	(0.152)	0.049	0.095
69	5.75	0.27	0.144	(0.151)	0.049	0.095
70	5.83	0.27	0.144	(0.150)	0.049	0.095
71	5.92	0.27	0.144	(0.150)	0.049	0.095
72	6.00	0.27	0.144	(0.149)	0.049	0.095
73	6.08	0.30	0.162	(0.148)	0.055	0.107
74	6.17	0.30	0.162	(0.148)	0.055	0.107
75	6.25	0.30	0.162	(0.147)	0.055	0.107
76	6.33	0.30	0.162	(0.146)	0.055	0.107
77	6.42	0.30	0.162	(0.146)	0.055	0.107
78	6.50	0.30	0.162	(0.145)	0.055	0.107
79	6.58	0.33	0.180	(0.145)	0.061	0.119
80	6.67	0.33	0.180	(0.144)	0.061	0.119
81	6.75	0.33	0.180	(0.143)	0.061	0.119
82	6.83	0.33	0.180	(0.143)	0.061	0.119
83	6.92	0.33	0.180	(0.142)	0.061	0.119
84	7.00	0.33	0.180	(0.141)	0.061	0.119
85	7.08	0.33	0.180	(0.141)	0.061	0.119
86	7.17	0.33	0.180	(0.140)	0.061	0.119
87	7.25	0.33	0.180	(0.139)	0.061	0.119
88	7.33	0.37	0.198	(0.139)	0.067	0.131
89	7.42	0.37	0.198	(0.138)	0.067	0.131
90	7.50	0.37	0.198	(0.137)	0.067	0.131
91	7.58	0.40	0.216	(0.137)	0.073	0.143
92	7.67	0.40	0.216	(0.136)	0.073	0.143
93	7.75	0.40	0.216	(0.136)	0.073	0.143
94	7.83	0.43	0.234	(0.135)	0.080	0.154
95	7.92	0.43	0.234	(0.134)	0.080	0.154
96	8.00	0.43	0.234	(0.134)	0.080	0.154
97	8.08	0.50	0.270	(0.133)	0.092	0.178
98	8.17	0.50	0.270	(0.132)	0.092	0.178
99	8.25	0.50	0.270	(0.132)	0.092	0.178
100	8.33	0.50	0.270	(0.131)	0.092	0.178
101	8.42	0.50	0.270	(0.131)	0.092	0.178
102	8.50	0.50	0.270	(0.130)	0.092	0.178
103	8.58	0.53	0.288	(0.129)	0.098	0.190
104	8.67	0.53	0.288	(0.129)	0.098	0.190
105	8.75	0.53	0.288	(0.128)	0.098	0.190
106	8.83	0.57	0.306	(0.128)	0.104	0.202
107	8.92	0.57	0.306	(0.127)	0.104	0.202
108	9.00	0.57	0.306	(0.126)	0.104	0.202
109	9.08	0.63	0.342	(0.126)	0.116	0.226
110	9.17	0.63	0.342	(0.125)	0.116	0.226
111	9.25	0.63	0.342	(0.125)	0.116	0.226
112	9.33	0.67	0.360	(0.124)	0.122	0.238
113	9.42	0.67	0.360	(0.123)	0.122	0.238
114	9.50	0.67	0.360	(0.123)	0.122	0.238
115	9.58	0.70	0.378	0.122 (0.129)		0.256
116	9.67	0.70	0.378	0.122 (0.129)		0.256
117	9.75	0.70	0.378	0.121 (0.129)		0.257
118	9.83	0.73	0.396	0.120 (0.135)		0.276
119	9.92	0.73	0.396	0.120 (0.135)		0.276
120	10.00	0.73	0.396	0.119 (0.135)		0.277

121	10.08	0.50	0.270	(0.119)	0.092	0.178
122	10.17	0.50	0.270	(0.118)	0.092	0.178
123	10.25	0.50	0.270	(0.118)	0.092	0.178
124	10.33	0.50	0.270	(0.117)	0.092	0.178
125	10.42	0.50	0.270	(0.116)	0.092	0.178
126	10.50	0.50	0.270	(0.116)	0.092	0.178
127	10.58	0.67	0.360	0.115	(0.122)	0.245
128	10.67	0.67	0.360	0.115	(0.122)	0.245
129	10.75	0.67	0.360	0.114	(0.122)	0.246
130	10.83	0.67	0.360	0.114	(0.122)	0.246
131	10.92	0.67	0.360	0.113	(0.122)	0.247
132	11.00	0.67	0.360	0.113	(0.122)	0.247
133	11.08	0.63	0.342	0.112	(0.116)	0.230
134	11.17	0.63	0.342	0.111	(0.116)	0.231
135	11.25	0.63	0.342	0.111	(0.116)	0.231
136	11.33	0.63	0.342	0.110	(0.116)	0.232
137	11.42	0.63	0.342	0.110	(0.116)	0.232
138	11.50	0.63	0.342	0.109	(0.116)	0.233
139	11.58	0.57	0.306	(0.109)	0.104	0.202
140	11.67	0.57	0.306	(0.108)	0.104	0.202
141	11.75	0.57	0.306	(0.108)	0.104	0.202
142	11.83	0.60	0.324	0.107	(0.110)	0.217
143	11.92	0.60	0.324	0.107	(0.110)	0.217
144	12.00	0.60	0.324	0.106	(0.110)	0.218
145	12.08	0.83	0.450	0.105	(0.153)	0.345
146	12.17	0.83	0.450	0.105	(0.153)	0.345
147	12.25	0.83	0.450	0.104	(0.153)	0.346
148	12.33	0.87	0.468	0.104	(0.159)	0.364
149	12.42	0.87	0.468	0.103	(0.159)	0.365
150	12.50	0.87	0.468	0.103	(0.159)	0.365
151	12.58	0.93	0.504	0.102	(0.171)	0.402
152	12.67	0.93	0.504	0.102	(0.171)	0.402
153	12.75	0.93	0.504	0.101	(0.171)	0.403
154	12.83	0.97	0.522	0.101	(0.177)	0.421
155	12.92	0.97	0.522	0.100	(0.177)	0.422
156	13.00	0.97	0.522	0.100	(0.177)	0.422
157	13.08	1.13	0.612	0.099	(0.208)	0.513
158	13.17	1.13	0.612	0.099	(0.208)	0.513
159	13.25	1.13	0.612	0.098	(0.208)	0.514
160	13.33	1.13	0.612	0.098	(0.208)	0.514
161	13.42	1.13	0.612	0.097	(0.208)	0.515
162	13.50	1.13	0.612	0.097	(0.208)	0.515
163	13.58	0.77	0.414	0.096	(0.141)	0.318
164	13.67	0.77	0.414	0.096	(0.141)	0.318
165	13.75	0.77	0.414	0.095	(0.141)	0.319
166	13.83	0.77	0.414	0.095	(0.141)	0.319
167	13.92	0.77	0.414	0.094	(0.141)	0.320
168	14.00	0.77	0.414	0.094	(0.141)	0.320
169	14.08	0.90	0.486	0.093	(0.165)	0.393
170	14.17	0.90	0.486	0.093	(0.165)	0.393
171	14.25	0.90	0.486	0.092	(0.165)	0.394
172	14.33	0.87	0.468	0.092	(0.159)	0.376
173	14.42	0.87	0.468	0.091	(0.159)	0.377
174	14.50	0.87	0.468	0.091	(0.159)	0.377
175	14.58	0.87	0.468	0.091	(0.159)	0.377
176	14.67	0.87	0.468	0.090	(0.159)	0.378
177	14.75	0.87	0.468	0.090	(0.159)	0.378
178	14.83	0.83	0.450	0.089	(0.153)	0.361
179	14.92	0.83	0.450	0.089	(0.153)	0.361
180	15.00	0.83	0.450	0.088	(0.153)	0.362
181	15.08	0.80	0.432	0.088	(0.147)	0.344
182	15.17	0.80	0.432	0.087	(0.147)	0.345
183	15.25	0.80	0.432	0.087	(0.147)	0.345
184	15.33	0.77	0.414	0.086	(0.141)	0.328
185	15.42	0.77	0.414	0.086	(0.141)	0.328
186	15.50	0.77	0.414	0.086	(0.141)	0.328
187	15.58	0.63	0.342	0.085	(0.116)	0.257
188	15.67	0.63	0.342	0.085	(0.116)	0.257
189	15.75	0.63	0.342	0.084	(0.116)	0.258
190	15.83	0.63	0.342	0.084	(0.116)	0.258
191	15.92	0.63	0.342	0.083	(0.116)	0.259
192	16.00	0.63	0.342	0.083	(0.116)	0.259
193	16.08	0.13	0.072	(0.083)	0.024	0.048
194	16.17	0.13	0.072	(0.082)	0.024	0.048

195	16.25	0.13	0.072	(0.082)	0.024	0.048
196	16.33	0.13	0.072	(0.081)	0.024	0.048
197	16.42	0.13	0.072	(0.081)	0.024	0.048
198	16.50	0.13	0.072	(0.080)	0.024	0.048
199	16.58	0.10	0.054	(0.080)	0.018	0.036
200	16.67	0.10	0.054	(0.080)	0.018	0.036
201	16.75	0.10	0.054	(0.079)	0.018	0.036
202	16.83	0.10	0.054	(0.079)	0.018	0.036
203	16.92	0.10	0.054	(0.078)	0.018	0.036
204	17.00	0.10	0.054	(0.078)	0.018	0.036
205	17.08	0.17	0.090	(0.078)	0.031	0.059
206	17.17	0.17	0.090	(0.077)	0.031	0.059
207	17.25	0.17	0.090	(0.077)	0.031	0.059
208	17.33	0.17	0.090	(0.076)	0.031	0.059
209	17.42	0.17	0.090	(0.076)	0.031	0.059
210	17.50	0.17	0.090	(0.076)	0.031	0.059
211	17.58	0.17	0.090	(0.075)	0.031	0.059
212	17.67	0.17	0.090	(0.075)	0.031	0.059
213	17.75	0.17	0.090	(0.075)	0.031	0.059
214	17.83	0.13	0.072	(0.074)	0.024	0.048
215	17.92	0.13	0.072	(0.074)	0.024	0.048
216	18.00	0.13	0.072	(0.073)	0.024	0.048
217	18.08	0.13	0.072	(0.073)	0.024	0.048
218	18.17	0.13	0.072	(0.073)	0.024	0.048
219	18.25	0.13	0.072	(0.072)	0.024	0.048
220	18.33	0.13	0.072	(0.072)	0.024	0.048
221	18.42	0.13	0.072	(0.072)	0.024	0.048
222	18.50	0.13	0.072	(0.071)	0.024	0.048
223	18.58	0.10	0.054	(0.071)	0.018	0.036
224	18.67	0.10	0.054	(0.071)	0.018	0.036
225	18.75	0.10	0.054	(0.070)	0.018	0.036
226	18.83	0.07	0.036	(0.070)	0.012	0.024
227	18.92	0.07	0.036	(0.070)	0.012	0.024
228	19.00	0.07	0.036	(0.069)	0.012	0.024
229	19.08	0.10	0.054	(0.069)	0.018	0.036
230	19.17	0.10	0.054	(0.069)	0.018	0.036
231	19.25	0.10	0.054	(0.068)	0.018	0.036
232	19.33	0.13	0.072	(0.068)	0.024	0.048
233	19.42	0.13	0.072	(0.068)	0.024	0.048
234	19.50	0.13	0.072	(0.067)	0.024	0.048
235	19.58	0.10	0.054	(0.067)	0.018	0.036
236	19.67	0.10	0.054	(0.067)	0.018	0.036
237	19.75	0.10	0.054	(0.066)	0.018	0.036
238	19.83	0.07	0.036	(0.066)	0.012	0.024
239	19.92	0.07	0.036	(0.066)	0.012	0.024
240	20.00	0.07	0.036	(0.066)	0.012	0.024
241	20.08	0.10	0.054	(0.065)	0.018	0.036
242	20.17	0.10	0.054	(0.065)	0.018	0.036
243	20.25	0.10	0.054	(0.065)	0.018	0.036
244	20.33	0.10	0.054	(0.064)	0.018	0.036
245	20.42	0.10	0.054	(0.064)	0.018	0.036
246	20.50	0.10	0.054	(0.064)	0.018	0.036
247	20.58	0.10	0.054	(0.064)	0.018	0.036
248	20.67	0.10	0.054	(0.063)	0.018	0.036
249	20.75	0.10	0.054	(0.063)	0.018	0.036
250	20.83	0.07	0.036	(0.063)	0.012	0.024
251	20.92	0.07	0.036	(0.063)	0.012	0.024
252	21.00	0.07	0.036	(0.062)	0.012	0.024
253	21.08	0.10	0.054	(0.062)	0.018	0.036
254	21.17	0.10	0.054	(0.062)	0.018	0.036
255	21.25	0.10	0.054	(0.062)	0.018	0.036
256	21.33	0.07	0.036	(0.061)	0.012	0.024
257	21.42	0.07	0.036	(0.061)	0.012	0.024
258	21.50	0.07	0.036	(0.061)	0.012	0.024
259	21.58	0.10	0.054	(0.061)	0.018	0.036
260	21.67	0.10	0.054	(0.060)	0.018	0.036
261	21.75	0.10	0.054	(0.060)	0.018	0.036
262	21.83	0.07	0.036	(0.060)	0.012	0.024
263	21.92	0.07	0.036	(0.060)	0.012	0.024
264	22.00	0.07	0.036	(0.060)	0.012	0.024
265	22.08	0.10	0.054	(0.059)	0.018	0.036
266	22.17	0.10	0.054	(0.059)	0.018	0.036
267	22.25	0.10	0.054	(0.059)	0.018	0.036
268	22.33	0.07	0.036	(0.059)	0.012	0.024

269	22.42	0.07	0.036	(0.059)	0.012	0.024
270	22.50	0.07	0.036	(0.059)	0.012	0.024
271	22.58	0.07	0.036	(0.058)	0.012	0.024
272	22.67	0.07	0.036	(0.058)	0.012	0.024
273	22.75	0.07	0.036	(0.058)	0.012	0.024
274	22.83	0.07	0.036	(0.058)	0.012	0.024
275	22.92	0.07	0.036	(0.058)	0.012	0.024
276	23.00	0.07	0.036	(0.058)	0.012	0.024
277	23.08	0.07	0.036	(0.057)	0.012	0.024
278	23.17	0.07	0.036	(0.057)	0.012	0.024
279	23.25	0.07	0.036	(0.057)	0.012	0.024
280	23.33	0.07	0.036	(0.057)	0.012	0.024
281	23.42	0.07	0.036	(0.057)	0.012	0.024
282	23.50	0.07	0.036	(0.057)	0.012	0.024
283	23.58	0.07	0.036	(0.057)	0.012	0.024
284	23.67	0.07	0.036	(0.057)	0.012	0.024
285	23.75	0.07	0.036	(0.057)	0.012	0.024
286	23.83	0.07	0.036	(0.057)	0.012	0.024
287	23.92	0.07	0.036	(0.057)	0.012	0.024
288	24.00	0.07	0.036	(0.056)	0.012	0.024

(Loss Rate Not Used)

Sum = 100.0 Sum = 38.8

Flood volume = Effective rainfall 3.24 (In)
 times area 1.7 (Ac.) / [(In) / (Ft.)] = 0.5 (Ac.Ft)
 Total soil loss = 1.26 (In)
 Total soil loss = 0.177 (Ac.Ft)
 Total rainfall = 4.50 (In)
 Flood volume = 19740.2 Cubic Feet
 Total soil loss = 7702.6 Cubic Feet

 Peak flow rate of this hydrograph = 0.873 (CFS)

+++++
 24 - H O U R S T O R M
 R u n o f f H y d r o g r a p h

 Hydrograph in 5 Minute intervals ((CFS))

Time (h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0002	0.03	Q				
0+10	0.0005	0.04	Q				
0+15	0.0008	0.04	Q				
0+20	0.0011	0.05	Q				
0+25	0.0015	0.06	Q				
0+30	0.0020	0.06	Q				
0+35	0.0024	0.06	Q				
0+40	0.0028	0.06	Q				
0+45	0.0032	0.06	Q				
0+50	0.0037	0.07	Q				
0+55	0.0043	0.08	Q				
1+ 0	0.0048	0.08	Q				
1+ 5	0.0053	0.07	Q				
1+10	0.0057	0.06	Q				
1+15	0.0061	0.06	Q				
1+20	0.0065	0.06	Q				
1+25	0.0070	0.06	Q				
1+30	0.0074	0.06	Q				
1+35	0.0078	0.06	Q				
1+40	0.0082	0.06	Q				
1+45	0.0086	0.06	Q				
1+50	0.0091	0.07	Q				
1+55	0.0097	0.08	Q				
2+ 0	0.0102	0.08	Q				
2+ 5	0.0108	0.08	Q				
2+10	0.0113	0.08	QV				
2+15	0.0119	0.08	QV				
2+20	0.0125	0.08	QV				
2+25	0.0130	0.08	QV				
2+30	0.0136	0.08	QV				
2+35	0.0142	0.09	QV				
2+40	0.0149	0.10	QV				
2+45	0.0156	0.10	QV				

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2+50	0.0163	0.10	QV						
2+55	0.0170	0.10	QV						
3+ 0	0.0177	0.10	QV						
3+ 5	0.0184	0.10	QV						
3+10	0.0191	0.10	QV						
3+15	0.0198	0.10	QV						
3+20	0.0205	0.10	QV						
3+25	0.0211	0.10	QV						
3+30	0.0218	0.10	QV						
3+35	0.0225	0.10	QV						
3+40	0.0232	0.10	Q V						
3+45	0.0239	0.10	Q V						
3+50	0.0247	0.12	Q V						
3+55	0.0255	0.12	Q V						
4+ 0	0.0264	0.12	Q V						
4+ 5	0.0272	0.12	Q V						
4+10	0.0280	0.12	Q V						
4+15	0.0289	0.12	Q V						
4+20	0.0298	0.14	Q V						
4+25	0.0308	0.14	Q V						
4+30	0.0317	0.14	Q V						
4+35	0.0327	0.14	Q V						
4+40	0.0337	0.14	Q V						
4+45	0.0347	0.14	Q V						
4+50	0.0357	0.16	Q V						
4+55	0.0368	0.16	Q V						
5+ 0	0.0379	0.16	Q V						
5+ 5	0.0389	0.13	Q V						
5+10	0.0397	0.12	Q V						
5+15	0.0405	0.12	Q V						
5+20	0.0414	0.14	Q V						
5+25	0.0424	0.14	Q V						
5+30	0.0434	0.14	Q V						
5+35	0.0445	0.16	Q V						
5+40	0.0456	0.16	Q V						
5+45	0.0467	0.16	Q V						
5+50	0.0478	0.16	Q V						
5+55	0.0489	0.16	Q V						
6+ 0	0.0500	0.16	Q V						
6+ 5	0.0512	0.18	Q V						
6+10	0.0525	0.18	Q V						
6+15	0.0537	0.18	Q V						
6+20	0.0550	0.18	Q V						
6+25	0.0562	0.18	Q V						
6+30	0.0574	0.18	Q V						
6+35	0.0588	0.20	Q V						
6+40	0.0602	0.20	Q V						
6+45	0.0616	0.20	Q V						
6+50	0.0630	0.20	Q V						
6+55	0.0643	0.20	Q V						
7+ 0	0.0657	0.20	Q V						
7+ 5	0.0671	0.20	Q V						
7+10	0.0685	0.20	Q V						
7+15	0.0699	0.20	Q V						
7+20	0.0714	0.22	Q V						
7+25	0.0729	0.22	Q V						
7+30	0.0744	0.22	Q V						
7+35	0.0760	0.24	Q V						
7+40	0.0777	0.24	Q V						
7+45	0.0794	0.24	Q V						
7+50	0.0811	0.26	IQ V						
7+55	0.0829	0.26	IQ V						
8+ 0	0.0847	0.26	IQ V						
8+ 5	0.0867	0.29	IQ V						
8+10	0.0888	0.30	IQ V						
8+15	0.0909	0.30	IQ V						
8+20	0.0930	0.30	IQ V						
8+25	0.0950	0.30	IQ V						
8+30	0.0971	0.30	IQ V						
8+35	0.0993	0.32	IQ V						
8+40	0.1015	0.32	IQ V						
8+45	0.1037	0.32	IQ V						
8+50	0.1061	0.34	IQ V						
8+55	0.1084	0.34	IQ V						

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9+ 0	0.1108	0.34	Q	V					
9+ 5	0.1133	0.37	Q	V					
9+10	0.1160	0.38	Q	V					
9+15	0.1186	0.38	Q	V					
9+20	0.1213	0.40	Q	V					
9+25	0.1241	0.40	Q	V					
9+30	0.1269	0.40	Q	V					
9+35	0.1298	0.42	Q	V					
9+40	0.1328	0.43	Q	V					
9+45	0.1358	0.43	Q	V					
9+50	0.1389	0.46	Q	V					
9+55	0.1422	0.47	Q	V					
10+ 0	0.1454	0.47	Q	V					
10+ 5	0.1478	0.35	Q	V					
10+10	0.1499	0.30	Q	V					
10+15	0.1519	0.30	Q	V					
10+20	0.1540	0.30	Q	V					
10+25	0.1561	0.30	Q	V					
10+30	0.1582	0.30	Q	V					
10+35	0.1608	0.38	Q	V					
10+40	0.1637	0.42	Q	V					
10+45	0.1665	0.42	Q	V					
10+50	0.1694	0.42	Q	V					
10+55	0.1723	0.42	Q	V					
11+ 0	0.1752	0.42	Q	V					
11+ 5	0.1779	0.40	Q	V					
11+10	0.1806	0.39	Q	V					
11+15	0.1833	0.39	Q	V					
11+20	0.1860	0.39	Q	V					
11+25	0.1887	0.39	Q	V					
11+30	0.1914	0.39	Q	V					
11+35	0.1939	0.36	Q	V					
11+40	0.1962	0.34	Q	V					
11+45	0.1986	0.34	Q	V					
11+50	0.2011	0.36	Q	V					
11+55	0.2036	0.37	Q	V					
12+ 0	0.2062	0.37	Q	V					
12+ 5	0.2098	0.52	Q	V					
12+10	0.2138	0.58	Q	V					
12+15	0.2178	0.59	Q	V					
12+20	0.2220	0.61	Q	V					
12+25	0.2262	0.62	Q	V					
12+30	0.2305	0.62	Q	V					
12+35	0.2351	0.66	Q	V					
12+40	0.2398	0.68	Q	V					
12+45	0.2445	0.68	Q	V					
12+50	0.2493	0.70	Q	V					
12+55	0.2542	0.71	Q	V					
13+ 0	0.2592	0.72	Q	V					
13+ 5	0.2648	0.83	Q	V					
13+10	0.2708	0.87	Q	V					
13+15	0.2768	0.87	Q	V					
13+20	0.2828	0.87	Q	V					
13+25	0.2888	0.87	Q	V					
13+30	0.2948	0.87	Q	V					
13+35	0.2992	0.63	Q	V					
13+40	0.3029	0.54	Q	V					
13+45	0.3066	0.54	Q	V					
13+50	0.3103	0.54	Q	V					
13+55	0.3141	0.54	Q	V					
14+ 0	0.3178	0.54	Q	V					
14+ 5	0.3221	0.63	Q	V					
14+10	0.3267	0.67	Q	V					
14+15	0.3313	0.67	Q	V					
14+20	0.3358	0.65	Q	V					
14+25	0.3401	0.64	Q	V					
14+30	0.3445	0.64	Q	V					
14+35	0.3489	0.64	Q	V					
14+40	0.3534	0.64	Q	V					
14+45	0.3578	0.64	Q	V					
14+50	0.3620	0.62	Q	V					
14+55	0.3662	0.61	Q	V					
15+ 0	0.3705	0.61	Q	V					
15+ 5	0.3745	0.59	Q	V					

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15+10	0.3786	0.58	I Q				V	
15+15	0.3826	0.58	I Q				V	
15+20	0.3865	0.56	I Q				V	
15+25	0.3903	0.56	I Q				V	
15+30	0.3941	0.56	I Q				V	
15+35	0.3974	0.47	I Q				V	
15+40	0.4004	0.44	I Q				V	
15+45	0.4034	0.44	I Q				V	
15+50	0.4064	0.44	I Q				V	
15+55	0.4094	0.44	I Q				V	
16+ 0	0.4124	0.44	I Q				V	
16+ 5	0.4137	0.18	Q				V	
16+10	0.4142	0.08	Q				V	
16+15	0.4148	0.08	Q				V	
16+20	0.4153	0.08	Q				V	
16+25	0.4159	0.08	Q				V	
16+30	0.4164	0.08	Q				V	
16+35	0.4169	0.07	Q				V	
16+40	0.4173	0.06	Q				V	
16+45	0.4177	0.06	Q				V	
16+50	0.4181	0.06	Q				V	
16+55	0.4185	0.06	Q				V	
17+ 0	0.4190	0.06	Q				V	
17+ 5	0.4196	0.09	Q				V	
17+10	0.4203	0.10	Q				V	
17+15	0.4210	0.10	Q				V	
17+20	0.4217	0.10	Q				V	
17+25	0.4223	0.10	Q				V	
17+30	0.4230	0.10	Q				V	
17+35	0.4237	0.10	Q				V	
17+40	0.4244	0.10	Q				V	
17+45	0.4251	0.10	Q				V	
17+50	0.4257	0.09	Q				V	
17+55	0.4263	0.08	Q				V	
18+ 0	0.4268	0.08	Q				V	
18+ 5	0.4274	0.08	Q				V	
18+10	0.4279	0.08	Q				V	
18+15	0.4285	0.08	Q				V	
18+20	0.4290	0.08	Q				V	
18+25	0.4296	0.08	Q				V	
18+30	0.4301	0.08	Q				V	
18+35	0.4306	0.07	Q				V	
18+40	0.4310	0.06	Q				V	
18+45	0.4314	0.06	Q				V	
18+50	0.4317	0.05	Q				V	
18+55	0.4320	0.04	Q				V	
19+ 0	0.4323	0.04	Q				V	
19+ 5	0.4327	0.05	Q				V	
19+10	0.4331	0.06	Q				V	
19+15	0.4335	0.06	Q				V	
19+20	0.4340	0.07	Q				V	
19+25	0.4346	0.08	Q				V	
19+30	0.4351	0.08	Q				V	
19+35	0.4356	0.07	Q				V	
19+40	0.4360	0.06	Q				V	
19+45	0.4364	0.06	Q				V	
19+50	0.4367	0.05	Q				V	
19+55	0.4370	0.04	Q				V	
20+ 0	0.4373	0.04	Q				V	
20+ 5	0.4377	0.05	Q				V	
20+10	0.4381	0.06	Q				V	
20+15	0.4385	0.06	Q				V	
20+20	0.4389	0.06	Q				V	
20+25	0.4393	0.06	Q				V	
20+30	0.4397	0.06	Q				V	
20+35	0.4402	0.06	Q				V	
20+40	0.4406	0.06	Q				V	
20+45	0.4410	0.06	Q				V	
20+50	0.4413	0.05	Q				V	
20+55	0.4416	0.04	Q				V	
21+ 0	0.4419	0.04	Q				V	
21+ 5	0.4422	0.05	Q				V	
21+10	0.4427	0.06	Q				V	
21+15	0.4431	0.06	Q				V	

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21+20	0.4434	0.05	Q					V
21+25	0.4437	0.04	Q					V
21+30	0.4439	0.04	Q					V
21+35	0.4443	0.05	Q					V
21+40	0.4447	0.06	Q					V
21+45	0.4452	0.06	Q					V
21+50	0.4455	0.05	Q					V
21+55	0.4457	0.04	Q					V
22+ 0	0.4460	0.04	Q					V
22+ 5	0.4464	0.05	Q					V
22+10	0.4468	0.06	Q					V
22+15	0.4472	0.06	Q					V
22+20	0.4475	0.05	Q					V
22+25	0.4478	0.04	Q					V
22+30	0.4481	0.04	Q					V
22+35	0.4484	0.04	Q					V
22+40	0.4487	0.04	Q					V
22+45	0.4489	0.04	Q					V
22+50	0.4492	0.04	Q					V
22+55	0.4495	0.04	Q					V
23+ 0	0.4498	0.04	Q					V
23+ 5	0.4500	0.04	Q					V
23+10	0.4503	0.04	Q					V
23+15	0.4506	0.04	Q					V
23+20	0.4509	0.04	Q					V
23+25	0.4512	0.04	Q					V
23+30	0.4514	0.04	Q					V
23+35	0.4517	0.04	Q					V
23+40	0.4520	0.04	Q					V
23+45	0.4523	0.04	Q					V
23+50	0.4525	0.04	Q					V
23+55	0.4528	0.04	Q					V
24+ 0	0.4531	0.04	Q					V
24+ 5	0.4532	0.01	Q					V

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

SECTION 4 - Soils Report

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

**PRELIMINARY GEOTECHNICAL INVESTIGATION
PROPOSED COMMERCIAL DEVELOPMENT
14058 REDLANDS BOULEVARD
MORENO VALLEY, CALIFORNIA**

**PROJECT NO. 12765.11
NOVEMBER 21, 2018**

Prepared For:

Mr. Parmjit Singh
14058 Redlands Boulevard
Moreno Valley, California 92555

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

November 21, 2018

Mr. Parmjit Singh
14058 Redlands Boulevard
Moreno Valley, California 92555

Project No. 12765.11

Subject: Preliminary Geotechnical Investigation, Proposed Commercial Development,
14058 Redlands Boulevard, Moreno Valley, California.

LOR Geotechnical Group, Inc., is pleased to present this report summarizing our geotechnical investigation for the subject project. In summary, it is our opinion that the proposed development is feasible from a geotechnical perspective, provided the recommendations presented in the attached report are incorporated into design and construction.

The project site is underlain by an approximate 2-foot thick layer of undocumented fill materials overlying alluvial materials which were found to have a potential for hydro-collapse in the upper 10 to 12 feet. It is our opinion that the existing fill materials and upper hydro-collapsible alluvial soils will not provide uniform and/or adequate support for the proposed development. Thus, we recommend a compacted fill mat be constructed beneath footings and slabs. The construction of this compacted fill mat will allow for the removal of the existing, uncontrolled fills and upper unsuitable alluvium. All on-site soils should be suitable for use as engineered compacted fill. Removals on the order of 10 to 12 feet are anticipated to be required within the proposed building pad areas, while removals on the order of 2 to 4 feet are expected to be necessary within parking, driveway, and flatwork areas.

Due to the presence of hydro-collapsible soils at the site and adjacent properties, infiltration of water into the upper approximately 10 to 12 feet is not recommended. While the remedial grading recommended within this report is anticipated to mitigate such soils within the proposed building areas of the site, the presence of hydro-collapsible soils on neighboring properties is most likely and the introduction of water into such soils could have an adverse effect on those developments.

Low expansive soils and moderate R-value quality soils were encountered on the site. A negligible sulfate content was found for the soils tested. Near completion and/or at the completion of site grading, additional foundation and subgrade soils should be tested to verify their expansion potential, soluble sulfate content, and R-value quality.

LOR Geotechnical Group, Inc.

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

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INTRODUCTION

During October and November of 2018, a Preliminary Geotechnical Investigation was performed by LOR Geotechnical Group, Inc., for the proposed commercial development of 14085 Redlands Boulevard, in the City of Moreno Valley, California. The purpose of this investigation was to provide a technical evaluation of the geologic setting of the site and to provide geotechnical design recommendations for the proposed development. The scope of our services included:

- Review of available geotechnical literature, reports, maps, and agency information pertinent to the study area;
- Geologic field reconnaissance mapping to verify the areal distribution of earth units and significance of surficial features as compiled from documents, literature, and reports reviewed;
- A subsurface field investigation to determine the physical soil conditions pertinent to the proposed development;
- Laboratory testing of selected soil samples obtained during the field investigation;
- Infiltration testing via the double ring test method within the approximate area proposed for the infiltration of onsite runoff waters;
- Development of geotechnical recommendations for site grading and foundation design; and
- Preparation of this report summarizing our findings, and providing conclusions and recommendations for site development.

The approximate location of the site is shown on the attached Index Map, Enclosure A-1 within Appendix A.

PROJECT CONSIDERATIONS

To orient our investigation at the site, a Site Plan was provided for our use. This plan illustrated the current site development as well as the proposed development. As illustrated, that the site will be developed with a 6,000 square foot restaurant and commercial building, a fueling station, and associated parking, driveway, and landscape improvements. A water quality basin is proposed. Minimal cuts and fills on the order of 2

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to 3 feet are anticipated based on the current site topography and that of the adjoining areas. A copy of the Site Plan is shown on Enclosure A-2, within the Appendix A.

The construction of the building is anticipated to be wood frame and stucco or similar type construction. Light to moderate foundation loads are anticipated with the proposed structure.

EXISTING SITE CONDITIONS

The site consists of approximately 2 acres of land located at the southeast corner of Alessandro Boulevard and Redlands Boulevard. At the time of our investigation, the site was partially developed with a commercial structure and the associated parking, driveway, and landscape improvements. A cellular tower and associated equipment was also present. This development comprised the western half of the site. The eastern half of the site was vacant. The proposed structure and water quality basin are to be in the southern portion of the eastern half of the site with the northern portion of the eastern half to be paved parking. The proposed fueling station is to be located within the currently developed parking lot in the northwest portion of the site.

The topography of the site is essentially a flat plain with a very slight slope to the south-southeast.

At the time of our investigation, the site was bounded on the east by a single family residences. The site was bounded on the south by Kimberly Avenue, a paved roadway, with single family residential properties beyond. The site was bounded on the north by Alessandro Boulevard, a paved roadway, with a small market/gas station and single family residences beyond. West of the site was Redlands Boulevard, a paved roadway, with a Post Office and single-family residences beyond.

PREVIOUS GEOTECHNICAL INVESTIGATIONS

This firm provided geotechnical services during the design and construction of the existing development on the site. Our initial investigation consisted of a preliminary geotechnical and infiltration feasibility investigation in 2011. This investigation was conducted to provide preliminary geotechnical recommendations for such items as: geologic hazards, site rough grading, foundation design, pavement design, and other associated geotechnical aspects with regards to site development. In brief summary, the upper approximately 10 to 12 feet of native soils were found to have a slight to moderate potential for hydro-collapse and

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were not considered suitable for support of structures and/or structural fill. In addition, the soils tested were found to have a low expansion potential, moderate R-value quality and negligible soluble sulfate content.

This firm provided geotechnical observation and compaction testing during the grading of the existing site improvements in 2012. Based on the recommendations of the preliminary geotechnical report, within the building pad area and extending approximately 12 feet beyond the footings, the upper approximately 12 feet of soil was removed and replaced as engineered compacted fill.

SUBSURFACE FIELD INVESTIGATION

Our subsurface field exploration program was conducted on October 26, 2018. The work consisted of advancing a total of three exploratory borings using a truck mounted drill rig equipped with 8-inch diameter hollow stem augers. The approximate locations of our exploratory borings are presented on Enclosure A-2, within Appendix A.

The subsurface conditions encountered in the exploratory borings were logged by a geologist from this firm. The borings were drilled to depths of 26.5 to 51.5 feet below the existing ground surface. Relatively undisturbed and bulk samples were obtained at a maximum depth interval of 5 feet and returned to our geotechnical laboratory in sealed containers for further testing and evaluation.

A detailed description of the subsurface field exploration program and the boring logs are presented in Appendix B.

LABORATORY TESTING PROGRAM

Selected soil samples obtained during the field investigation were subjected to geotechnical laboratory testing to evaluate their physical and engineering properties. Laboratory testing included moisture content, dry density, laboratory compaction, consolidation, direct shear, sieve analysis, sand equivalent, R-Value, expansion index, Atterberg limits, and soluble sulfate content. A detailed description of the geotechnical laboratory testing program and the test results are presented in Appendix C.

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GEOLOGIC CONDITIONS

Regional Geologic Setting

The site is situated within the northeastern portion of the Peninsular Ranges Geomorphic Province of southern California. This province incorporates several northwest trending mountain ranges, such as the Santa Ana and San Jacinto Mountains, which extend from the Transverse Ranges Geomorphic Province, northeast of Los Angeles, into the Baja California Peninsula. Lying in between these small ranges are a series of valleys and basins, such as the Perris Plain. The Perris Plain is composed of rocks of the Peninsular Ranges batholith, a very large mass composed primarily of batholithic crystalline igneous rocks, with lesser amounts of metasedimentary and metavolcanic rocks which predate the intrusion of the batholith. The batholithic rocks actually consist of numerous separate plutonic intrusions which range in composition from gabbro to granite, with tonalite the predominate lithology. While the floor of the Perris Plain is relatively flat, it is dotted with small remnant hills composed of rocks highly resistant to erosion. Erosion of the hills has resulted in the covering of a thin to thick veneer of various ages of alluvial fan materials across the flank of the hills and out into the adjoining valley floor. The current drainage pattern of the northeastern section of Moreno Valley flows to the south, then turns to the southwest where southward flow is blocked by Mount Russell. This pattern has eroded off some of the older alluvial fan materials and subsequently deposited various amounts of relatively younger, unconsolidated alluvial sediments along the lower reaches of the valley.

The interior of the Perris Plain is considered to be relatively stable with few known active faults. However, this plain is bounded by active faults. These include the Elsinore fault zone on the west, the San Jacinto fault zone on the northeast, the San Andreas fault zone on the north, and the Agua-Tibia fault zone on the south. As the subject site is located near the northeastern margin of the Perris Plain, the San Jacinto fault is the closest known active fault in relation to the site. At its closest approach, the San Jacinto fault is located approximately 3 kilometers (1.9 miles) northeast from the site. A complete listing of the distances to known active faults in relation to the various planning areas is given in the Faulting section of this report.

The site is shown within the regional geologic setting as mapped by the U.S.G.S. on the enclosed Regional Geologic Map, Enclosure A-3, within Appendix A.

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Site Geologic Conditions

As observed during this investigation, the subject site contains a very thin veneer of undocumented fill/topsoil or engineered fill overlying native alluvial materials. These units are described in further detail in the following sections:

Surficial Deposits

Fill/Topsoil: The surface of the currently undeveloped portion of the site contained a very thin layer of fill/topsoil materials. These materials were noted to generally consist of sandy silt which was gray-brown in color, dry, and in a relatively loose state. This unit was noted to be approximately 2 feet in thickness as is most likely a result of past and current weed abatement practices at the site.

Engineered Fill:

Underlying areas of the site that are currently developed, engineered compacted fill previously mentioned above was encountered at the surface to a depth of approximately 5 feet (LOR, 2012). These materials consisted of sandy silt and silty sand which was gray-brown, dry at the surface becoming damp to moist with depth.

Alluvium: Underlying the surficial fill materials, natural units of alluvium were encountered. These materials generally consisted of lean clay with sand near the surface followed by sandy silt within the upper approximately 25 feet. Lean clay with sand was encountered at depths of approximately 25 feet and greater. In general, the upper approximately 25 feet of alluvial materials were brown to white-tan in color, damp to dry, and contained varying amounts of calcite stringers and pinhole porosity. Based on our in-place density testing and equivalent SPT blow counts, the upper 10 to 12 feet of the alluvium is in a medium to very stiff state while the materials below are in a very stiff to very hard state. Consolidation testing also showed that the upper alluvial units have a moderately severe potential for collapse. Collapsible soils are primarily defined as unsaturated, granular materials in a loose state that is maintained by apparent cohesion due to clays or accumulated soluble salts at their intergranular contacts. These soils are relatively strong at their natural water contents but experience a significant decrease in volume (settlement) due to softening of the binder upon the introduction of water. A potential for hydro-collapse of approximately 10 percent was determined for the upper 10 feet of the native alluvial materials. Below 10 feet, the hydro-collapse potential of the on-site soils decreases to less than one-half percent and is, therefore, considered negligible. Expansion index testing performed on the

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fine grained units of alluvium showed that these soils have a low expansion potential. Details and the results of our consolidation and expansion index testing is presented within Appendix C of this report.

A detailed description of the subsurface soil conditions as encountered within our exploratory borings is presented on the Boring Logs within Appendix B.

Groundwater Hydrology

Groundwater was not encountered in any of our excavations at the site. In order to estimate the approximate depth to groundwater in this area, a search was conducted for local municipal water wells on the Western Municipal Water District Cooperative Well Measuring Program, Spring 2018. This database contains depth to groundwater measurements dating back to 1993. The closest well found was listed as the well "Sunnymead Poultry Theodore South" operated by Eastern Municipal Valley Water District, located approximately 0.8 kilometers (0.5 miles) to the northeast. In this well, given by the State Well numbering system as 03S/03W-12K001S, groundwater was last measured at a depth of 127 feet below the ground surface in November of 2007. The depth to groundwater in the past was noted to vary slightly over time. However, data was only available for the years from 2004 to 2007. The next closest well found was listed as the well "MVRGC" operated by Eastern Municipal Valley Water District, located approximately 1.2 kilometers (0.75 miles) to the southwest. In this well, given by the State Well numbering system as 03S/03W-14L011E, groundwater was last measured at a depth of 69 feet below the ground surface in October of 2016. The depth to groundwater in the past was noted to vary slightly over time. However, data was only available for the years from 2004 to 2016.

According to the Santa Ana Watershed Authority Database Management System, groundwater lied at an elevation of approximately 1,500 feet above mean sea level (msl) from 1987 to 2006. The approximate elevation of the subject site is 1,600 feet above msl.

We conducted a search of the water well database provided in the State of California Department of Water Resources website. This search indicated the nearest well in this database was State Well Number 03S02W07P001S, located approximately 2 kilometers (1.2 miles) to the northeast. Data for this well was available from 1939 to 1985. Groundwater measurements over that time ranged from approximately 100 feet to 145 feet below the ground surface.

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Based on the information above, groundwater at the site appears to be at depths on the order of one hundred feet.

Mass Movement

The majority of the site lies on a relatively flat surface. The occurrence of mass movement failures such as landslides, rockfalls, or debris flows within such areas are generally not considered common and no evidence of mass movement was observed on the site.

Faulting

No active or potentially active faults are known to exist at the subject site. In addition, the subject site does not lie within a current State of California Earthquake Fault Zone (Hart and Bryant, 2003).

As previously mentioned, the closest known active earthquake fault with a documented location is the San Jacinto fault located approximately 3 kilometers (1.9 miles) to the northeast. In addition, other relatively close active faults include the San Andreas fault located approximately 22 kilometers (13.5 miles) to the northeast, the Elsinore fault located approximately 34.5 kilometers (21.4 miles) to the southwest, and the Cucamonga fault located approximately 39 kilometers (24 miles) to the north.

The San Jacinto fault zone is a sub-parallel branch of the San Andreas fault zone, extending from the northwestern San Bernardino area, southward into the El Centro region. This fault has been active in recent times with several large magnitude events. It is believed that the San Jacinto fault is capable of producing an earthquake magnitude on the order of 6.5 or larger.

The San Andreas fault is considered to be the major tectonic feature of California, separating the Pacific Plate and the North American Plate. While estimates vary, the San Andreas fault is generally thought to have an average slip rate on the order of 24mm/yr and capable of generating large magnitude events on the order of 7.5.

The Elsinore fault zone is one of the largest in southern California. At its northern end it splays into two segments and at its southern end it is cut by the Yuba Wells fault. The primary sense of slip along the Elsinore fault is right lateral strike-slip. It is believed that the Elsinore fault zone is capable of producing an earthquake magnitude on the order of 6.5 to 7.5.

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The Cucamonga fault is considered to be part of the Sierra Madre fault system which marks the southern boundary of the San Gabriel Mountains. This is a north dipping thrust fault which is believed to be responsible for the uplift of the San Gabriel Mountains. It is believed that the Cucamonga fault is capable of producing an earthquake magnitude on the order of 7.0.

Current standards of practice included a discussion of all potential earthquake sources within a 100 kilometer (62 mile) radius. However, while there are other large earthquake faults within a 100 kilometer (62-mile) radius of the site, none of these are considered as relevant to the site as the faults described above, due to their closer distance and larger anticipated magnitudes.

Historical Seismicity

In order to obtain a general perspective of the historical seismicity of the site and surrounding region, a search was conducted for seismic events at and around the area within various radii. This search was conducted utilizing the historical seismic search program by EPI Software, Inc. (Reeder, 2000). This program conducts a search of a user selected cataloged seismic events database, within a specified radius and selected magnitudes, and then plots the events onto an overlay map of known faults. For this investigation the database of seismic events utilized by the EPI program was obtained from the Southern California Seismic Network (SCSN) available from the Southern California Earthquake Center. At the time of our search the data base contained data from January 1, 1932 through December 31, 2010.

In our first search, the general seismicity of the region was analyzed by selecting an epicenter map listing all events of magnitude 4.0 and greater, recorded since 1932, within a 100 kilometer (62 mile) radius of the site, in accordance with guidelines of the California Division of Mines and Geology. This map illustrates the regional seismic history of moderate to large events. As depicted on Enclosure A-4, within Appendix A, the site lies within a relatively active region associated with the San Jacinto and the San Andreas faults trending southeast to northwest. Of these events, the closest was a magnitude 4.1 located approximately 10 kilometers (6.2 miles) north of the site.

In the second search, the micro seismicity of the area lying within a 10 kilometer (9.2 miles) radius of the site was examined by selecting an epicenter map listing events on the order of 0.0 and greater since 1978. In addition, only the "A" events, or most accurate events were selected. Caltech indicates the accuracy of the "A" events to be approximately 1

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kilometer. The results of this search is a map that presents the seismic history around the area of the site with much greater detail, not permitted on the larger map. The reason for limiting the events to the last 30 ± years on the detail map is to enhance the accuracy of the map. Events recorded prior the mid 1970's are generally considered to be less accurate due to advancements in technology. As depicted on this map, Enclosure A-5, the San Jacinto fault appears to be the source of numerous events, roughly coinciding with the surface trace of this fault.

In summary, the historical seismicity of the site entails numerous small to medium magnitude earthquake events occurring in the region around the subject site, predominately associated with the presence of the San Jacinto, and San Andreas faults. Any future developments at the subject site should anticipate that moderate to large seismic events could occur very near the site.

Secondary Seismic Hazards

Other secondary seismic hazards generally associated with severe ground shaking during an earthquake include liquefaction, seismic-induced settlement, seiches and tsunamis, earthquake induced flooding, landsliding, and rockfalls.

Liquefaction: The potential for liquefaction generally occurs during strong ground shaking within loose, granular sediments where the groundwater is usually less than 50 feet. As the depth to groundwater is on the order of one hundred feet the potential for liquefaction is considered nil.

Seiches/Tsunamis: The potential for the site to be affected by a seiche or tsunami (earthquake generated wave) is considered nil due to the absence of any large bodies of water near the site.

Flooding (Water Storage Facility Failure): There are no large water storage facilities located on or near the site which could possibly rupture during an earthquake and affect the site by flooding.

Seismically-Induced Landsliding: Due to the low relief of the site and surrounding region, the potential for landslides to occur at the site is considered nil.

Rockfalls. No large, exposed, loose or unrooted boulders are present above the site that would affect the integrity of the site.

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SOILS AND SEISMIC DESIGN CRITERIA (California Building Code 2016)

Section 1613 of Chapter 16 of the 2016 California Building Code (CBC) contains the procedures and definitions for the calculations of the earthquake loads on structures and non structural components that are permanently attached to structures and their supports and attachments.

It should be noted that the classification of use and occupancy of all proposed structures at the site, and thus design requirements, shall be the responsibility of the structural engineer and the building official.

CBC Earthquake Design Summary

The following earthquake design criteria have been formulated for the site utilizing the source referenced above.

However, these values should be reviewed by the building official (Risk Category) and structural engineer and the final design should be performed by a qualified structural engineer familiar with the region.

CBC 2016 SEISMIC DESIGN SUMMARY (ASCE 7-10)* Site Location (USGS WGS84) 33.9169, -117.1561, Risk Category II	
Site Class Definition Chapter 20 ASCE 7	D
S_s Mapped Spectral Response Acceleration at 0.2s Period, (Figure 1613.3.1(1))	2.114
S_1 Mapped Spectral Response Acceleration at 1s Period, (Figure 1613.3.3(2))	0.955
F_a Short Period Site Coefficient at 0.2s Period, (Table 1613.3.3(1))	1.0
F_v Long Period Site Coefficient at 1s Period, (Table 1613.3.3(2))	1.5
S_{MS} Adjusted Spectral Response Acceleration at 0.2s Period, (eq .16-37)	2.114
S_{M1} Adjusted Spectral Response Acceleration at 1s Period, (eq .16-38)	1.432
S_{DS} Design Spectral Response Acceleration at 0.2s Period, (eq .16-39)	1.409
S_{D1} Design Spectral Response Acceleration at 1s Period, (eq .16-40)	0.955
Seismic Design Category - Short Period (Table 1613.3.5(1))	E
Seismic Design Category - Long Period (Table 1613.3.5(2))	E
*Values obtained from U.S.G.S. online U.S. Seismic Design Maps tool	

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INFILTRATION TESTING AND TEST RESULTS

Two double ring infiltration tests were conducted at the locations requested and illustrated on Enclosure A-2. As requested, test pits were excavated to depths of approximately 4 feet below the existing ground surface and a 12-inch diameter casing was installed within the center of the test locations with a 24-inch diameter casing centered around it. Each casing was imbedded to a depth of approximately 3.5-inches. These liners extended approximately 16.5-inches above the bottom of the test location. The test locations were tested immediately after the casings were installed by filling both the inside and outside casings and maintaining a water level to a depth of approximately 3.5 and 4-inches.

The testing procedure was as follows:

Both the inside and outside areas of the casings were filled with water to a level of approximately 3.5 and 4-inches above the ground surface. Water was then metered to maintain this water level within both rings. The volume of water use in a given time period was recorded at various time intervals to establish the infiltration rate of the water within the inner ring. See the attached Infiltration Test Data sheets, Enclosures D-1 and D-2 within Appendix D for the test information and measurements.

The infiltration rate is measured as the drop in water level compared to the permeability of the bottom surface area soils in the bottom of the test hole. If casing is not used, the water column in the test hole is allowed to seep into both the bottom and sidewalls of the hole, for which the drop in water level must be corrected and reduced for the volume of water seeping into the sidewall and for the diameter of the test hole. As described above, the tests described herein were conducted using a 12-inch diameter inner casing and 24-inch diameter outer casing.

The test holes were found to have the following measured clear water infiltration rates:

Infiltration Test No.	Infiltration Rate*	
	gal/sf/day	in/hr
DRI-1	22.7	1.7
DRI-2	22.5	1.7
* Rounded final reading		

Our test data indicates decent infiltration rates of the soils tested.

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CONCLUSIONS

On the basis of our field investigation and testing program, it is the opinion of LOR Geotechnical Group, Inc., that the proposed development is feasible from a soil engineering standpoint, provided the recommendations presented in this report are incorporated into design and implemented during grading and construction.

Based upon the field investigation and test data, it is our opinion that the surficial layer of existing fill/topsoil materials that covers the site, as well as the upper portions of the alluvial soil will not, in their present conditions, provide uniform and/or adequate support for the proposed structures. However, the removal and recompaction of existing on-site soils will be an acceptable solution. Our in-place density results indicated variable conditions of the existing fills and upper portions of the alluvial materials ranging from loose to medium dense states. In addition, a potential for hydro-collapse of approximately 10 percent was exhibited by the upper alluvial units, as shown in the laboratory test results presented within Appendix C. Left as is, this condition could cause unacceptable differential and/or overall settlements upon application of the anticipated foundation loads.

To provide adequate support for the proposed structure, we recommend a compacted fill mat be constructed beneath footings and slabs. This compacted fill mat will provide a dense, high-strength soil layer to uniformly distribute the anticipated foundation loads over the underlying soils. In addition, the construction of this compacted fill mat will allow for the removal of the existing fills and the loose, moderately collapsible alluvial soil within the building pad area. Conventional foundation systems, using either individual spread footings and/or continuous wall footings, will provide adequate support for the anticipated downward and lateral loads when utilized in conjunction with the recommended fill mat.

Soil Expansiveness

As noted by our subsurface explorations and laboratory testing, the site surficial soils primarily consist of lean clay with sand and silty sand with trace of clay that possess a low expansion potential. Therefore, recommendations for low expansive soils are given in the Foundation Design, Building Area Slab-on-Grade, and Exterior Flatwork sections of this report.

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Geologic Mitigations

No special mitigation methods are deemed necessary at this time, other than the geotechnical recommendations provided in the following sections.

Seismicity

Seismic ground rupture is generally considered most likely to occur along pre-existing active faults. Since no faults are known to exist at, or project into the site, the probability of ground surface rupture occurring at the site is considered nil.

Due to the site's close proximity to the San Jacinto and San Andreas faults described above, it is reasonable to expect a very strong ground motion seismic event to occur during the lifetime of the proposed development on the site. Large earthquakes could occur on other faults in the general area, but because of their lesser anticipated magnitude and/or greater distance, they are considered less significant than the San Jacinto and San Andreas fault zones from a ground motion standpoint.

The effects of ground shaking anticipated at the subject site, should be mitigated by the seismic design requirements and procedures outlined in Chapter 16 of the California Building Code. However, it should be noted that the current building code requires the minimum design to allow a structure to remain standing after a seismic event, in order to allow for safe evacuation. A structure built to code may still sustain damage which might ultimately result in the demolishing of the structure (Larson and Slosson, 1992).

RECOMMENDATIONS

General Site Grading

It is imperative that no clearing and/or grading operations be performed without the presence of a qualified geotechnical engineer. An on-site, pre-job meeting with the developer, the contractor, the jurisdictional agency, and the geotechnical engineer should occur prior to all grading related operations. Operations undertaken at the site without the geotechnical engineer present may result in exclusion of affected areas from the final compaction report for the project.

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Grading of the subject site should be performed in accordance with the following recommendations as well as applicable portions of the California Building Code, and/or applicable local ordinances.

All areas to be graded should be stripped of significant vegetation and other deleterious materials. Such materials may not be used as engineered fill.

All uncontrolled fills encountered during site preparation should be completely removed, cleaned of significant deleterious materials, and may then be reused as compacted fill. Uncontrolled fills were identified at the site during this study to a depth on the order of 2 feet.

It is our recommendation that all existing uncontrolled and/or undocumented fills under any proposed flatwork and paved areas should be removed and replaced with engineered compacted fill. If this is not done, premature structural distress (settlement) of the flatwork and pavement may occur.

Cavities created by removal of subsurface obstructions should be thoroughly cleaned of loose soil, organic matter and other deleterious materials, shaped to provide access for construction equipment, and backfilled as recommended in the following Engineered Compacted Fill section of this report.

Initial Site Preparation

All existing uncontrolled fills and loose, hydro-collapsible alluvial materials should be removed from structural areas and areas to receive structural fills. The data developed during this investigation indicates that removals on the order of 10 to 12 feet will be required to encounter competent alluvium. Areas adjacent to the existing structure to within approximately 12 feet, are anticipated to encounter engineered compacted fill previously placed during rough grading for the structure. Removals for the new structure should expose these materials prior to reaching the existing building. Competent alluvium is defined as damp, medium dense to dense materials with a minimum relative compaction of 83 percent (ASTM D 1557).

Remedial removals on the order of 2 to 4 feet in depth are anticipated to be required within planned parking, driveway, and flatwork areas in order to eliminate the existing uncontrolled fills.

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The actual depths of removal should be verified during the grading operation by observation and in-place density testing.

Preparation of Fill Areas

After conducting the removals discussed above and prior to placing fill, the surfaces of all areas to receive fill should be scarified to a depth of at least 12 inches. The scarified soil should be brought to near optimum moisture content and recompacted to a relative compaction of at least 90 percent (ASTM D 1557).

Preparation of Building Pad Areas

All footings should rest upon a minimum of 24 inches of properly compacted fill material placed over competent alluvium. In areas where the required fill thickness is not accomplished by the removal of the existing fill and loose alluvial materials and site rough grading, the footing areas should be further subexcavated to a depth of at least 24 inches below the proposed footing base grade, with the subexcavation extending at least 5 feet beyond the footing lines. Where deeper removals in excess of 5 feet are required, these removals should extend laterally at a 1:1 ratio. The bottom of this excavation should then be scarified to a depth of at least 12 inches, brought to near optimum moisture content, and recompacted to at least 90 percent relative compaction (ASTM D 1557) prior to refilling the excavation to grade as properly compacted fill.

Along the northern, eastern, and southern portion of the restaurant/commercial building, removals will need to extend eastward beyond the footing line in order to provide the above recommended 1:1 ratio. As previously mentioned, areas adjacent to the existing structure to within approximately 12 feet, are anticipated to encounter engineered compacted fill previously placed during rough grading for the structure. Removals for the new structure should expose these materials prior to reaching the existing building.

To provide adequate support, concrete slabs-on-grade should bear on a minimum of 12 inches of compacted soil. During rough grading, the remedial removals recommended above will most likely provide the recommended 12 inches of compacted soil for adequate support of concrete slabs-on-grade.

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Engineered Compacted Fill

The on-site soils should provide adequate quality fill material, provided they are free from organic matter and other deleterious materials. Unless approved by the geotechnical engineer, rock or similar irreducible material with a maximum dimension greater than 6-inches should not be buried or placed in fills.

Import fill should be inorganic, non-expansive granular soils free from rocks or lumps greater than 6-inches in maximum dimension. Sources for import fill should be approved by the geotechnical engineer prior to their use.

Fill should be spread in maximum 8-inch loose lifts, each lift brought to near optimum moisture content, and compacted to a relative compaction of at least 90 percent in accordance with ASTM D 1557.

As noted before, the on-site soils have potential for expansion. Therefore, a careful evaluation of on-site and any imported soils for their expansion potential should be conducted during the grading operation.

Short-Term Excavations

Following the California Occupational and Safety Health Act (CAL-OSHA) requirements, excavations 5-feet deep and greater should be sloped or shored. All excavations and shoring should conform to CAL-OSHA requirements.

Short-term excavations of 5-feet deep and greater shall conform to Title 8 of the California Code of Regulations, Construction Safety Orders, Section 1504 and 1539 through 1547. Based on our exploratory borings it appears that Type C soil is the predominant type of soil on the project and all short-term excavations should be based on this type of soil. Deviation from the standard short-term slopes are permitted using Option 4, Design by a Registered Professional Engineer (Section 1541.1).

Short-term slope construction and maintenance are the responsibility of the contractor, and should be a consideration of his methods of operation and the actual soil conditions encountered.

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Soil Expansiveness

The upper materials encountered during this investigation were observed to be granular and considered to have a low expansion potential. Therefore, specialized construction procedures to specifically resist expansive soil activity are not anticipated at this time. In order to verify this, additional evaluation of on-site and any imported soils for their expansion potential should be conducted following completion of the grading operation.

Foundation Design

If the site is prepared as recommended, the proposed residential buildings may be safely founded on conventional spread foundations, either individual spread footings and/or continuous wall footings, bearing on a minimum of 24 inches of engineered compacted fill. All foundations should have a minimum width of 12 inches and should be established a minimum of 12 inches below lowest adjacent grade.

For the minimum width and depth, footings may be designed using a maximum soil bearing pressure of 1,500 pounds per square foot (psf) for dead plus live loads. This value may be increased by 300 psf for each additional foot of width and by 300 psf for each additional foot of depth, to a maximum of 3,000 psf.

The above values are net pressures; therefore, the weight of the foundations and the backfill over the foundations may be neglected when computing dead loads. The values apply to the maximum edge pressure for foundations subjected to eccentric loads or overturning. The recommended pressures apply for the total of dead plus frequently applied live loads, and incorporate a factor of safety of at least 3.0. The allowable bearing pressures may be increased by one-third for temporary wind or seismic loading. The resultant of the combined vertical and lateral seismic loads should act within the middle one-third of the footing width. The maximum calculated edge pressure under the toe of foundations subjected to eccentric loads or overturning should not exceed the increased allowable pressure.

Resistance to lateral loads will be provided by passive earth pressure and base friction. For footings bearing against compacted fill, passive earth pressure may be considered to be developed at a rate of 300 pounds per square foot per foot of depth. Base friction may be computed at 0.30 times the normal load. Base friction and passive earth pressure may be combined without reduction.

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Footings on low expansive soils should be reinforced with a minimum of two #4 rebars, one near the top and one near the bottom of the footings.

The preceding recommendations to counteract low expansive soil activity should be considered preliminary and should be revised upon the completion of the site grading. More stringent parameters for design of foundations on expansive soils can be specified by a structural engineer experienced in these matters.

Settlement

Total settlement of individual foundations will vary depending on the width of the foundation and the actual load supported. Maximum settlement of shallow foundations designed and constructed in accordance with the preceding recommendations are estimated to be on the order of 0.5 inch. Differential settlement between adjacent footings should be about one-half of the total settlement. Settlement of all foundations is expected to occur rapidly, primarily as a result of elastic compression of supporting soils as the loads are applied, and should be essentially completed shortly after initial application of the loads.

Building Pad Slab-On-Grade Design

Concrete floor slabs should bear on a minimum of 24 inches of engineered fill compacted to at least 90 percent (ASTM D 1557) placed over competent alluvium. This will most likely be accomplished during the recommended removals previously mentioned. The final pad surfaces should be rolled to provide smooth, dense surfaces upon which to place the concrete.

Because low expansive soils are present at the site, slab areas should be properly pre-soaked prior to pouring concrete. Slab areas should be pre-soaked to approximately 2 percent above the optimum moisture content to a minimum depth of 12 inches. Unless more stringent parameters are given by the structural engineer experienced on expansive soil design, the slab thickness should be a minimum of 4 inches. Minimum slab reinforcement should consist of #3 rebars placed at a maximum spacing of 18 inches on center, each way.

Slabs to receive moisture-sensitive coverings should be provided with a moisture vapor barrier. This barrier may consist of an impermeable membrane. Two inches of sand over the membrane will reduce punctures and aid in obtaining a satisfactory concrete cure. The sand should be moistened just prior to placing of concrete.

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The slabs should be protected from rapid and excessive moisture loss which could result in slab curling. Careful attention should be given to slab curing procedures, as the site area is subject to large temperature extremes, humidity, and strong winds.

The preceding recommendations to counteract low expansive soil activity should be considered preliminary and are subject to the review and approval of the project structural engineer. These recommendations should be also revised upon the completion of the site grading.

Exterior Flatwork

To provide adequate support, exterior flatwork improvements should rest on a minimum of 12 inches of soil compacted to at least 90 percent (ASTM D 1557).

Because low expansive soils are present at the site, flatwork areas should be pre-soaked prior to pouring concrete to a minimum depth of 12 inches and to approximately 2 percent above the optimum moisture content. All sidewalks, patio slabs, and driveways with a minimum dimension greater than 5 feet, should be reinforced with #3 rebars placed at a maximum spacing of 18 inches on center, each way. Reinforcement for curbing should be one continuous #4 rebar at top and bottom. In addition, it is recommended that sidewalks, patio slabs, curbs, etc., have a thickness of at least 4 inches, with saw cuts every 10 feet or less. Driveways should be at least 8 inches (per city standard 112) thick, with saw cuts every 15 feet or less.

Flatwork surface should be sloped a minimum of 1 percent away from buildings and slopes, to approved drainage structures.

Again, the recommendations given to counteract low expansive soil activity should be considered preliminary and should be revised upon the completion of the site grading.

Wall Pressures

The design of footings for walls below grade (basement or pit walls, etc.) and retaining structures should be performed in accordance with the recommendations described earlier under Preparation of Building Pad Areas and Foundation Design. For design of retaining wall footings, the resultant of the applied loads should act in the middle one-third of the

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footing, and the maximum edge pressure should not exceed the basic allowable value without increase.

For design of retaining walls unrestrained against movement at the top, we recommend an equivalent fluid density of 35 pounds per cubic foot (pcf) be used. This assumes level backfill consisting of recompacted, non-expansive, native soils placed against the structures and with the backcut slope extending upward from the base of the stem at 35 degrees from the vertical or flatter.

As noted before, expansive soils are present at the site. Since these materials have a very low permeability very uncertain behavior, and exert much higher lateral earth pressures on retaining structures, they should not be used as wall backfills.

To avoid overstressing or excessive tilting during placement of backfill behind walls, heavy compaction equipment should not be allowed within the zone delineated by a 45 degree line extending from the base of the wall to the fill surface. The backfill directly behind the walls should be compacted using light equipment such as hand operated vibrating plates and rollers. No material larger than 3-inches in diameter should be placed in direct contact with the wall.

Wall pressures should be verified prior to construction, when the actual backfill materials and conditions have been determined. Recommended pressures are applicable only to level, non-expansive, properly drained backfill (with no additional surcharge loadings). If inclined backfills are proposed, this firm should be contacted to develop appropriate active earth pressure parameters. Toe bearing pressure for non-structural walls on soils, not prepared as described earlier under Preparation of Foundation Areas, should not exceed California Building Code values, (CBC Table 18-1.A).

Preliminary Pavement Design

Testing and design for preliminary on-site pavement was conducted in accordance with the Caltrans Highway Design Manual. Based upon our preliminary sampling and testing, and upon assumed Traffic Indices, it appears that the structural sections tabulated below should provide satisfactory pavements for the subject development:

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AREA	T.I.	DESIGN R-VALUE	PRELIMINARY SECTION
On-site parking and drive aisles	5.0	20	0.25' AC/0.60' AB
Local Street - Kimberly Avenue	6.0	20	0.30' AC*/0.85' CAB
AC - Asphalt Concrete AB - Class 2 Aggregate Base or equivalent CAB - Crushed Aggregate Base * Minimum thickness per the City of Moreno Valley Standard Plans No. 100A approved 09/18			

The above structural sections are predicated upon 90 percent relative compaction (ASTM D 1557) of all utility trench backfills and 95 percent relative compaction (ASTM D 1557) of the upper 12 inches of street subgrade soils and of any aggregate base utilized. In addition, the on-site aggregate base should meet Caltrans specifications for Class 2 Aggregate Base and the aggregate base within the City right-of-way should meet Greenbook specifications for Crushed Aggregate Base.

In areas of the pavement which will receive high abrasion loads due to start-ups and stops, or where trucks will move on a tight turning radius, consideration should be given to installing concrete pads. Such pads should contain a minimum of 0.50 foot thick concrete with a 0.35 foot thick aggregate base. Concrete pads are also recommended in areas adjacent to trash storage areas where heavier loads will occur due to operation of trucks lifting trash dumpsters. The minimum compressive strength of concrete paving should be 3,250 psi.

It should be noted that all of the above pavement design was based upon the results of preliminary sampling and testing, and should be verified by additional sampling and testing during construction when the actual subgrade soils are exposed.

Sulfate Protection

The results of the sulfate tests conducted on selected subgrade soils expected to be encountered at foundation levels are presented in Appendix C.

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Based on the test results it appears that there is a negligible sulfate exposure to concrete elements in contact with on site soils. The 2016 CBC, therefore, does not recommend special design criteria for concrete elements in contact with such materials.

Infiltration Basin

Due to the presence of hydro-collapsible soils at the site and adjacent properties, infiltration of water into the upper approximately 10 to 12 feet is not recommended. While the remedial grading recommended within this report is anticipated to mitigate such soils within the proposed building areas of the site, the presence of hydro-collapsible soils on neighboring properties is most likely and the introduction of water into such soils could have an adverse effect on those developments.

Construction Monitoring

Post investigative services are an important and necessary continuation of this investigation. Project plans and specifications should be reviewed by the project geotechnical consultant prior to construction to confirm that the intent of the recommendations presented in this report have been incorporated into the design. Additional R-Value, expansion index, and soluble sulfate testing may be required after/during site rough grading.

During construction, sufficient and timely geotechnical observation and testing should be provided to correlate the findings of this investigation with the actual subsurface conditions exposed during construction. Items requiring observation and testing include, but are not necessarily limited to, the following:

1. Site preparation-stripping and removals.
2. Excavations, including approval of the bottom of excavation prior to backfilling.
3. Scarifying and recompacting prior to fill placement.
4. Subgrade preparation for pavements and slabs-on-grade.

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5. Placement of engineered compacted fill and backfill, including approval of fill materials and the performance of sufficient density tests to evaluate the degree of compaction being achieved.

LIMITATIONS

This report contains geotechnical conclusions and recommendations developed solely for use by Mr. Parmjit Singh, and their design consultants, for the purposes described earlier. It may not contain sufficient information for other uses or the purposes of other parties. The contents should not be extrapolated to other areas or used for other facilities without consulting LOR Geotechnical Group, Inc.

The recommendations are based on interpretations of the subsurface conditions concluded from information gained from subsurface explorations and a surficial site reconnaissance. The interpretations may differ from actual subsurface conditions, which can vary horizontally and vertically across the site. If conditions are encountered during the construction of the project, which differ significantly from those presented in this report, this firm should be notified immediately so we may assess the impact to the recommendations provided. Due to possible subsurface variations, all aspects of field construction addressed in this report should be observed and tested by the project geotechnical consultant.

If parties other than LOR Geotechnical Group, Inc. provide construction monitoring services, they must be notified that they will be required to assume responsibility for the geotechnical phase of the project being completed by concurring with the recommendations provided in this report or by providing alternative recommendations.

The report was prepared using generally accepted geotechnical engineering practices under the direction of a state licensed geotechnical engineer. No warranty, expressed or implied, is made as to conclusions and professional advice included in this report. Any persons using this report for bidding or construction purposes should perform such independent investigations as deemed necessary to satisfy themselves as to the surface and subsurface conditions to be encountered and the procedures to be used in the performance of work on this project.

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TIME LIMITATIONS

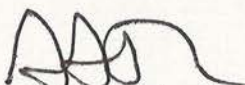
The findings of this report are valid as of this date. Changes in the condition of a property can, however, occur with the passage of time, whether they be due to natural processes or the work of man on this or adjacent properties. In addition, changes in the Standards-of-Practice and/or Governmental Codes may occur. Due to such changes, the findings of this report may be invalidated wholly or in part by changes beyond our control. Therefore, this report should not be relied upon after a significant amount of time without a review by LOR Geotechnical Group, Inc. verifying the suitability of the conclusions and recommendations.


CLOSURE

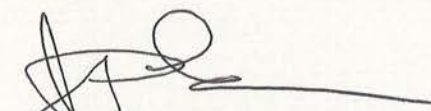
It has been a pleasure to assist you with this project. We look forward to being of further assistance to you as construction begins. Should conditions be encountered during construction that appear to be different than indicated by this report, please contact this office immediately in order that we might evaluate their effect.

Should you have any questions regarding this report, please do not hesitate to contact our office at your convenience.

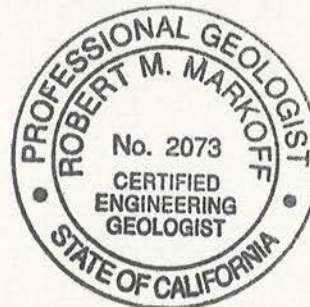
Respectfully submitted,
LOR Geotechnical Group, Inc.


Andrew A. Tardie
Staff Geologist


Robert M. Markoff, CEG 2073
Engineering Geologist


John P. Leuer, GE 2030
President

AAT:RMM:JPL/ss



Distribution: Addressee (4) and via email psingh57@aol.com
Harry Heady via email hheady@headydesign.com

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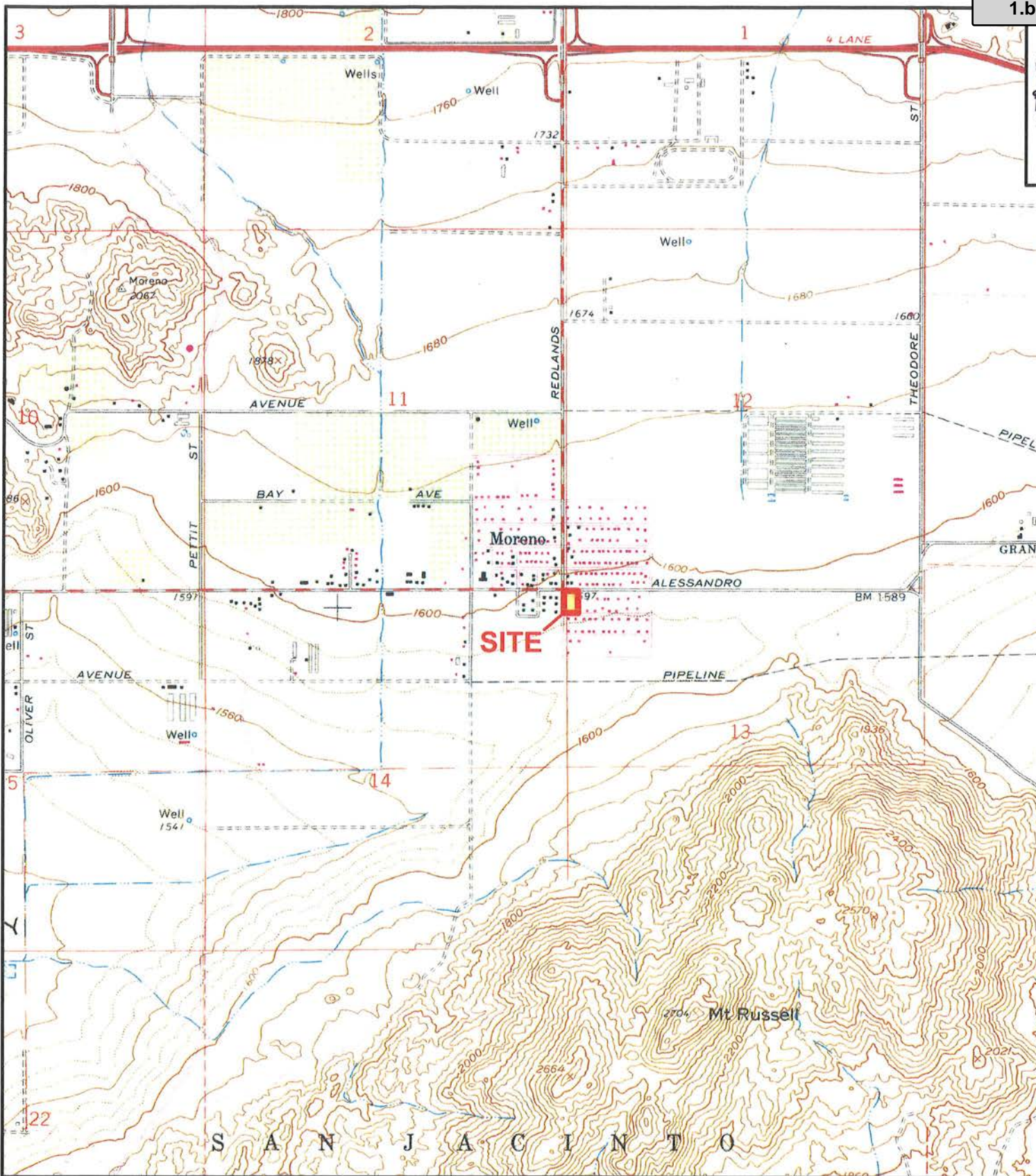
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APPENDIX A

Index Map, Site Plan, Regional Geologic Map, and Historical Seismicity Maps



INDEX MAP

PROJECT: PROPOSED GAS STATION AND RESTAURANT, MORENO VALLEY, CALIFORNIA

PROJECT NO: 12765

CLIENT: MR. PARMJIT SINGH

ENCLOSURE: /

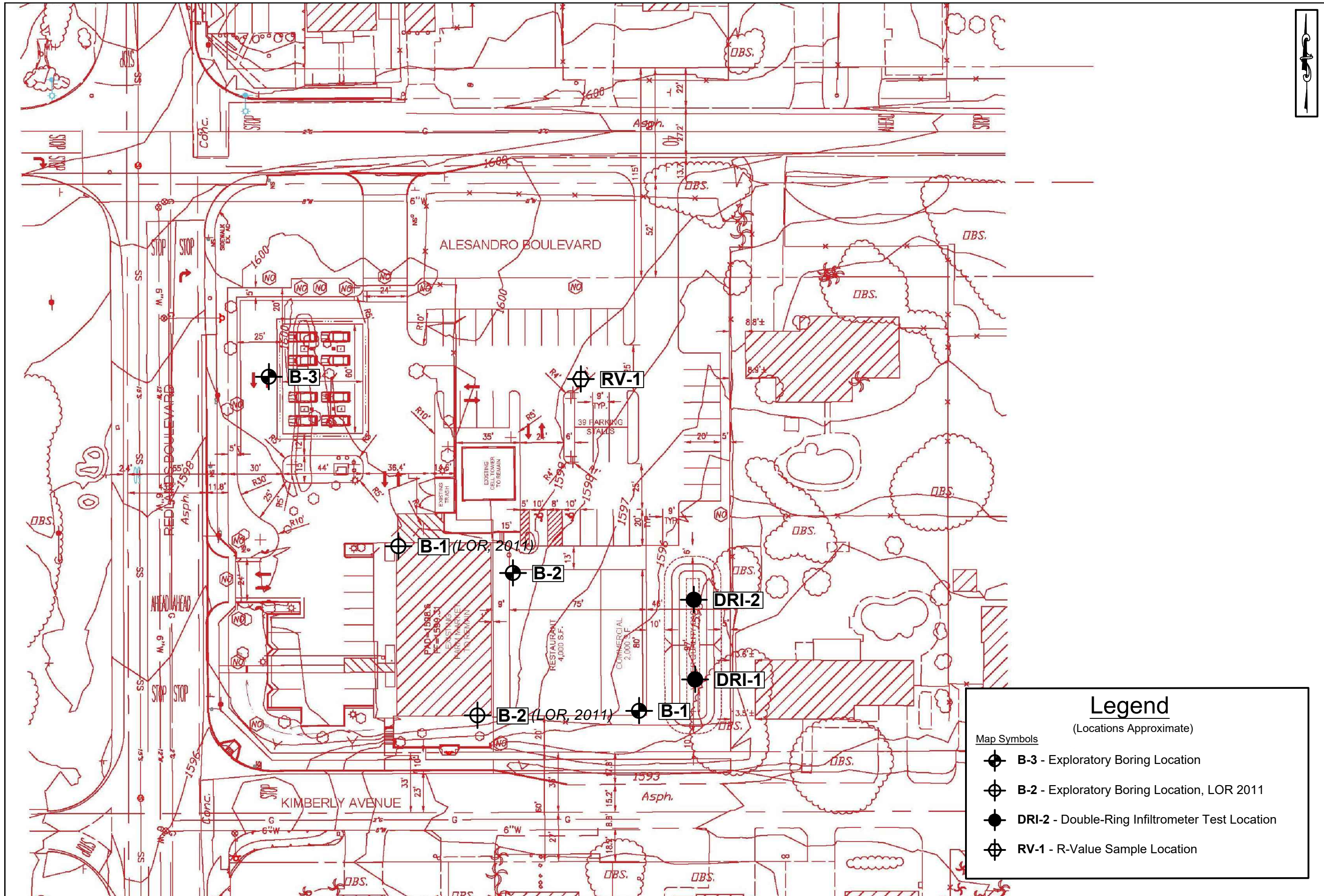
LOR Geotechnical Group, Inc.

DATE: OCTOBER 20

SCALE: 1" = 2000'





Packet Pg. 1121

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)



Legend
(Locations Approximate)

Map Symbols

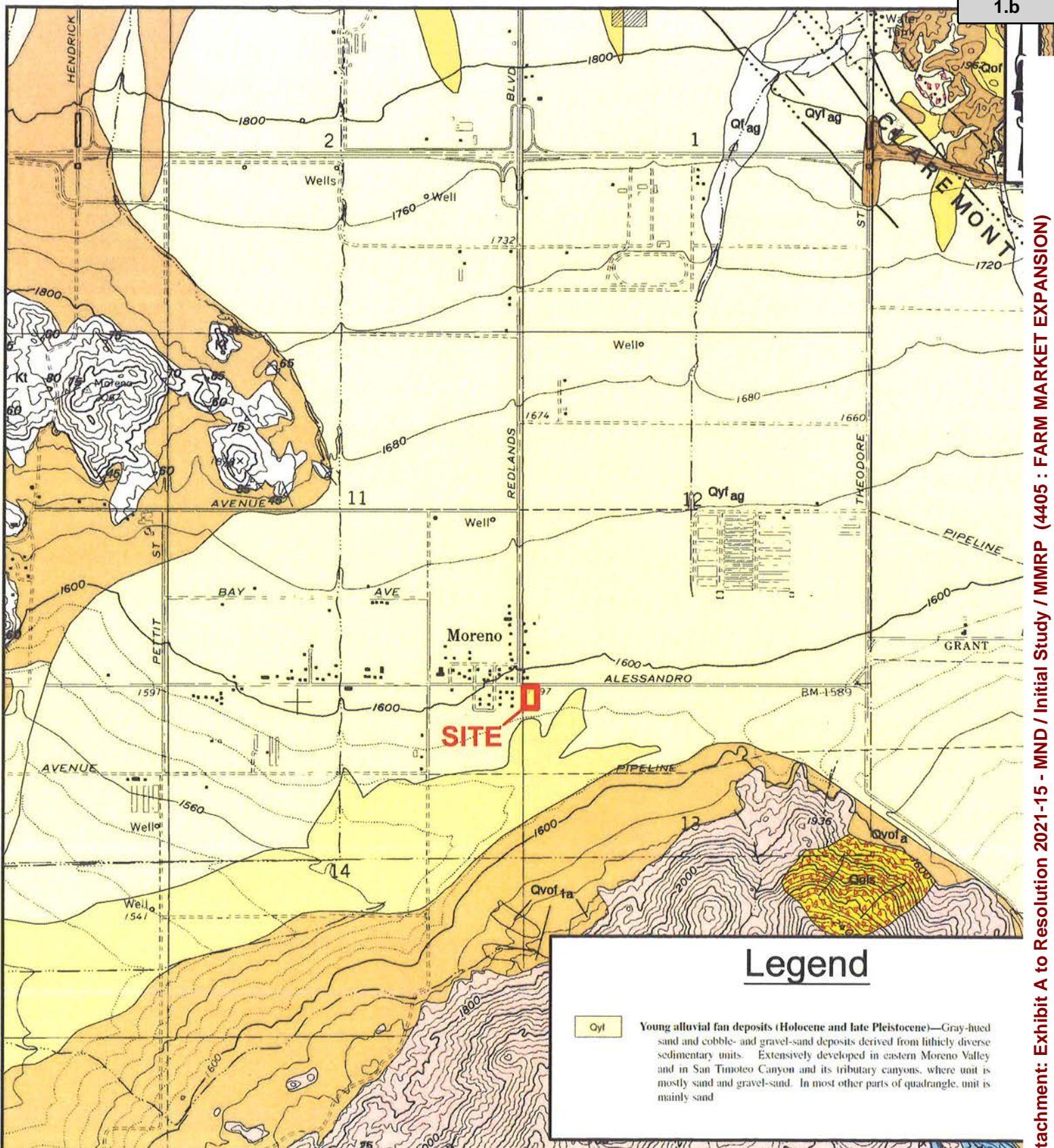
-  **B-3** - Exploratory Boring Location
-  **B-2** - Exploratory Boring Location, LOR 2011
-  **DRI-2** - Double-Ring Infiltrometer Test Location
-  **RV-1** - R-Value Sample Location

SITE PLAN

PROJECT: PROPOSED GAS STATION AND RESTAURANT, MORENO VALLEY, CALIFORNIA	PROJECT NO.: 12765.11
CLIENT: MR. PARMJIT SINGH	ENCLOSURE: A-2
	DATE: OCTOBER 2018
	SCALE: 1" = 50'

LOR Geotechnical Group, Inc.

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)



Legend

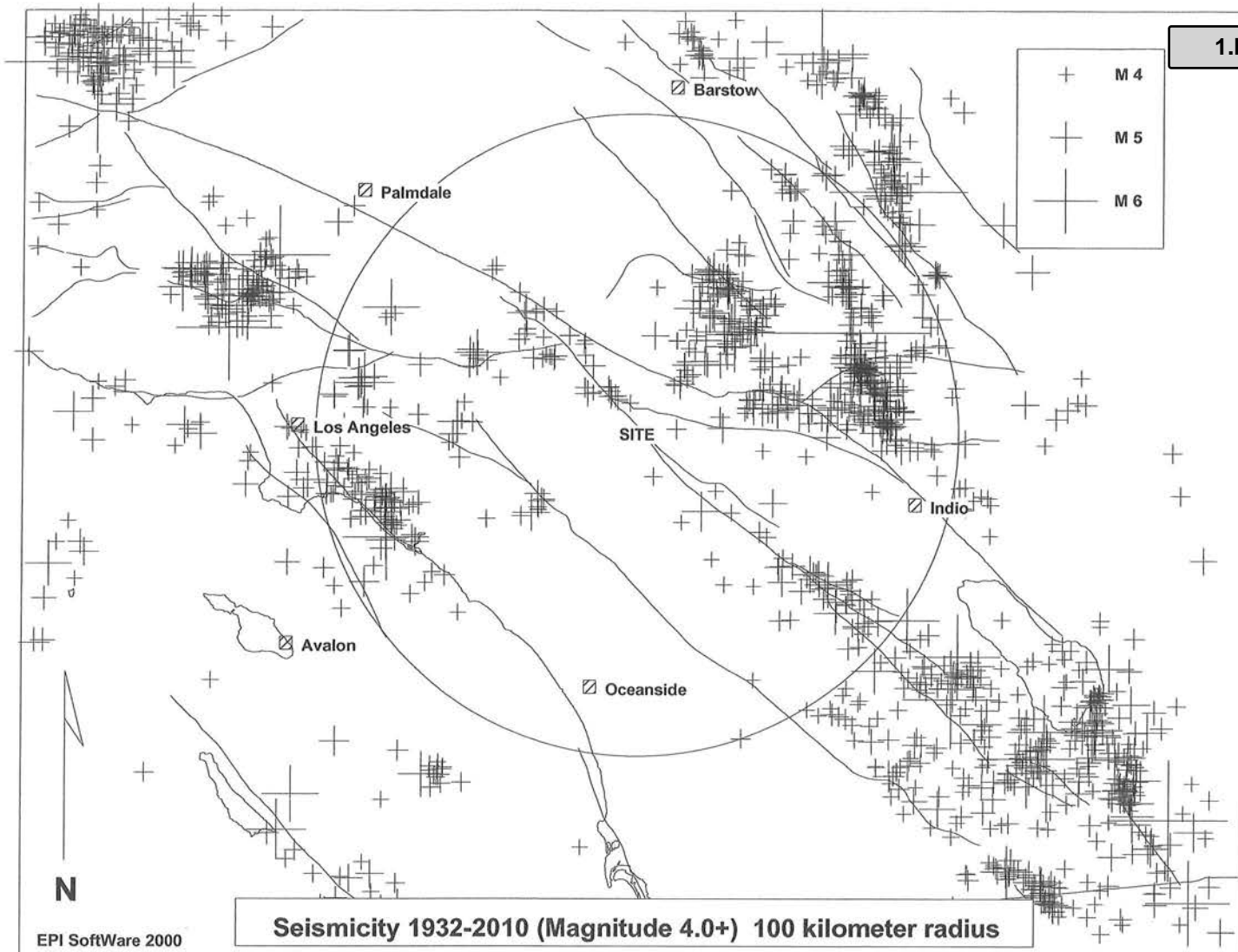
Qyl Young alluvial fan deposits (Holocene and late Pleistocene)—Gray-hued sand and cobble- and gravel-sand deposits derived from lithically diverse sedimentary units. Extensively developed in eastern Moreno Valley and in San Timoteo Canyon and its tributary canyons, where unit is mostly sand and gravel-sand. In most other parts of quadrangle, unit is mainly sand

REGIONAL GEOLOGIC MAP

(Morton & Matti, 199

PROJECT:	PROPOSED GAS STATION AND RESTAURANT, MORENO VALLEY, CALIFORNIA	PROJECT NO:	12765.
CLIENT:	MR. PARMJIT SINGH	ENCLOSURE:	A
LOR Geotechnical Group, Inc.		DATE:	OCTOBER 201
		SCALE:	1" = 2000'

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)



SITE LOCATION: 33.9169 LAT. -117.1561 LONG.

MINIMUM LOCATION QUALITY: C

TOTAL # OF EVENTS ON PLOT: 1506

TOTAL # OF EVENTS WITHIN SEARCH RADIUS: 603

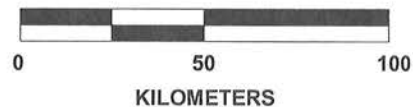
MAGNITUDE DISTRIBUTION OF SEARCH RADIUS EVENTS:

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 5.0- 5.9 : 55
 6.0- 6.9 : 4
 7.0- 7.9 : 1
 8.0- 8.9 : 0

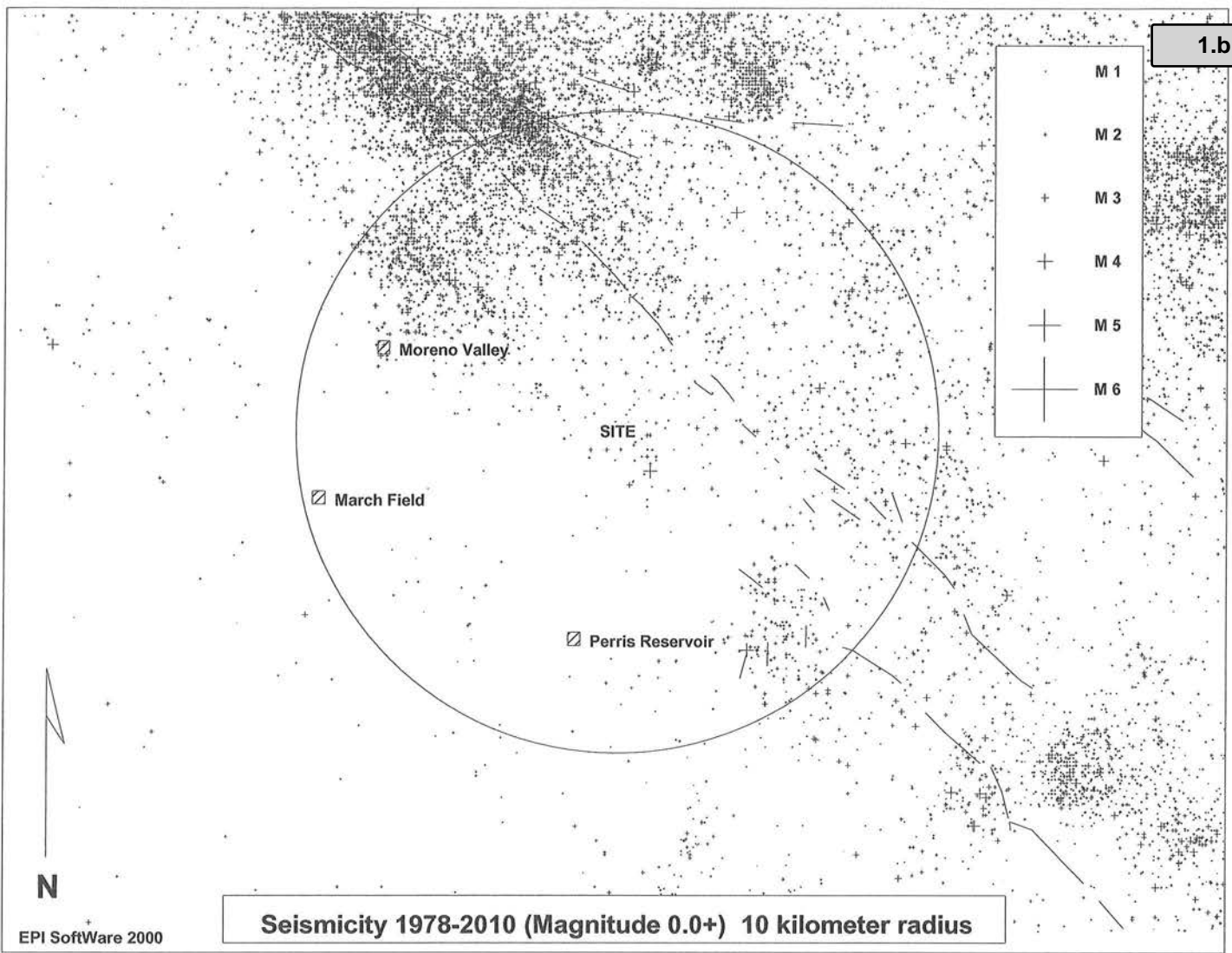
CLOSEST EVENT: 4.1 ON SATURDAY, FEBRUARY 13, 2010 LOCATED APPROX. 10 KILOMETERS NORTH OF THE SITE

LARGEST 5 EVENTS:

7.3 ON SUNDAY, JUNE 28, 1992 LOCATED APPROX. 73 KILOMETERS NORTHEAST OF THE SITE
 6.4 ON SATURDAY, MARCH 11, 1933 LOCATED APPROX. 84 KILOMETERS SOUTHWEST OF THE SITE
 6.3 ON SUNDAY, JUNE 28, 1992 LOCATED APPROX. 43 KILOMETERS NORTHEAST OF THE SITE
 6.1 ON THURSDAY, APRIL 23, 1992 LOCATED APPROX. 77 KILOMETERS EAST OF THE SITE
 6.0 ON SATURDAY, DECEMBER 04, 1948 LOCATED APPROX. 76 KILOMETERS EAST OF THE SITE



ENCLOSURE A-4



1.b

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

SITE LOCATION: 33.9169 LAT. -117.1561 LONG.

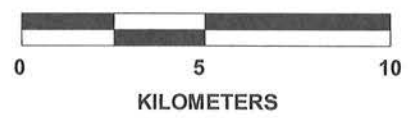
MINIMUM LOCATION QUALITY: A

TOTAL # OF EVENTS ON PLOT: 11223

TOTAL # OF EVENTS WITHIN SEARCH RADIUS: 2981

MAGNITUDE DISTRIBUTION OF SEARCH RADIUS EVENTS:

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- 2.0- 2.9 : 363
- 3.0- 3.9 : 13
- 4.0- 4.9 : 1
- 5.0- 5.9 : 0
- 6.0- 6.9 : 0
- 7.0- 7.9 : 0
- 8.0- 8.9 : 0



CLOSEST EVENT: 1.0 ON FRIDAY, NOVEMBER 21, 2008 LOCATED APPROX. .3 KILOMETER OF THE SITE

LARGEST 5 EVENTS:

- 4.1 ON SATURDAY, FEBRUARY 13, 2010 LOCATED APPROX. 9 KILOMETERS NORTH OF THE SITE
- 3.8 ON MONDAY, JULY 10, 2006 LOCATED APPROX. 7 KILOMETERS SOUTHEAST OF THE SITE
- 3.8 ON THURSDAY, SEPTEMBER 12, 1996 LOCATED APPROX. 1 KILOMETERS SOUTHEAST OF THE SITE
- 3.6 ON SATURDAY, JUNE 04, 1988 LOCATED APPROX. 7 KILOMETERS NORTHEAST OF THE SITE
- 3.5 ON TUESDAY, OCTOBER 13, 1987 LOCATED APPROX. 7 KILOMETERS NORTHWEST OF THE SITE

ENCLOSURE A-5

APPENDIX B

Field Investigation Program and Boring Logs

APPENDIX B

FIELD INVESTIGATION

Subsurface Exploration

Our subsurface exploration of the site consisted of drilling a total of three exploratory borings to depths ranging from approximately 26.5 to 51.5 feet below the existing ground surface using a Mobile B-61 drill rig on October 26, 2018. The approximate locations of the borings are shown on Enclosure A-2.

The drilling exploration was conducted using a Mobile B-61 drill rig equipped with 8-inch diameter hollow stem augers. The soils encountered within the borings were continuously logged by a geologist from this firm who inspected the site, created detailed logs of the borings, obtained undisturbed, as well as disturbed, soil samples for evaluation and testing, and classified the soils by visual examination in accordance with the Unified Soil Classification System.

Relatively undisturbed samples of the subsoils were typically obtained at a maximum interval of 5 feet. The samples were recovered by using a California split barrel sampler of 2.40-inch inside diameter and 3.25-inch outside diameter from the ground surface to the maximum depths attained. The samplers were driven by a 140-pound automatic trip hammer dropped from a height of 30 inches. The number of hammer blows required to drive the sampler into the ground the final 12 inches were recorded and further converted to an equivalent SPT N-values, which are included in the boring logs, Enclosures B-1 through B-3.

The undisturbed soil samples were retained in brass sample rings of 2.42 inches in diameter and 1.00 inch in height, and placed in sealed plastic containers. Disturbed soil samples were obtained at selected levels within the borings and placed in sealed containers for transport to our geotechnical laboratory.

All samples obtained were taken to our geotechnical laboratory for storage and testing. Detailed logs of the borings are presented on the enclosed Boring Logs, Enclosures B-1 through B-3. A Boring Log Legend is presented on Enclosure B-i. A Soil Classification Chart is presented as Enclosure B-ii.

CONSISTENCY OF SOIL

SAMPLE KEY

SANDS

<u>SPT BLOWS</u>	<u>CONSISTENCY</u>
0-4	Very Loose
4-10	Loose
10-30	Medium Dense
30-50	Dense
Over 50	Very Dense

Symbol

Description



INDICATES CALIFORNIA SPLIT SPOON SOIL SAMPLE

INDICATES BULK SAMPLE

INDICATES SAND CONE OR NUCLEAR DENSITY TEST

INDICATES STANDARD PENETRATION TEST (SPT) SOIL SAMPLE

COHESIVE SOILS

<u>SPT BLOWS</u>	<u>CONSISTENCY</u>
0-2	Very Soft
2-4	Soft
4-8	Medium
8-15	Stiff
15-30	Very Stiff
30-60	Hard
Over 60	Very Hard

TYPES OF LABORATORY TESTS

- 1 Atterberg Limits
- 2 Consolidation
- 3 Direct Shear (undisturbed or remolded)
- 4 Expansion Index
- 5 Hydrometer
- 6 Organic Content
- 7 Proctor (4", 6", or Cal216)
- 8 R-value
- 9 Sand Equivalent
- 10 Sieve Analysis
- 11 Soluble Sulfate Content
- 12 Swell
- 13 Wash 200 Sieve

BORING LOG LEGEND

PROJECT:	PROPOSED GAS STATION CANOPY & RESTAURANT	PROJECT NO.: 12765.11
CLIENT:	PARMJIT SINGH	ENCLOSURE: B-i
LOR Geotechnical Group, Inc.		DATE: OCTOBER 2018

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS
			GRAPH	LETTER	
COARSE GRAINED SOILS <small>MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE</small>	GRAVEL AND GRAVELLY SOILS <small>MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE</small>	CLEAN GRAVELS <small>(LITTLE OR NO FINES)</small>		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES <small>(APPRECIABLE AMOUNT OF FINES)</small>		GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
	SAND AND SANDY SOILS <small>MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE</small>	CLEAN SANDS <small>(LITTLE OR NO FINES)</small>		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
		SANDS WITH FINES <small>(APPRECIABLE AMOUNT OF FINES)</small>		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
				SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
FINE GRAINED SOILS <small>MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE</small>	SILTS AND CLAYS <small>LIQUID LIMIT LESS THAN 50</small>		SM	SILTY SANDS, SAND - SILT MIXTURES	
			SC	CLAYEY SANDS, SAND - CLAY MIXTURES	
			ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY	
	SILTS AND CLAYS <small>LIQUID LIMIT GREATER THAN 50</small>		CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS	
			OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY	
			MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS	
HIGHLY ORGANIC SOILS				CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

PARTICLE SIZE LIMITS

BOULDERS	COBBLES	GRAVEL		SAND			SILT OR CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE	
12"	3"	3/4"	No. 4	No. 10	No. 40	200	
<small>(U.S. STANDARD SIEVE SIZE)</small>							

SOIL CLASSIFICATION CHART

PROJECT	PROPOSED GAS STATION CANOPY & RESTAURANT	PROJECT NO. 12765.11
CLIENT:	PARMJIT SINGH	ENCLOSURE: B-ii
<h2 style="margin: 0;">LOR Geotechnical Group, Inc.</h2>		DATE: OCTOBER 2018

LOG OF BORING B-1

TEST DATA

DEPTH IN FEET	TEST DATA				SAMPLE TYPE	LITHOLOGY	U.S.C.S.	DESCRIPTION
	SPT BLOW COUNTS	LABORATORY TESTS	MOISTURE CONTENT (%)	DRY DENSITY (PCF)				
0								
11	1, 3, 4, 7, 11	4.0	96.8	█	█	ML CL	@ 0 feet, FILL/TOPSOIL: SANDY SILT , approximately 5% gravel to 2", 10% coarse grained sand, 10% medium grained sand, 15% fine grained sand, 60% silty fines with trace clay, gray-brown, dry.	
5	8 19	2 7.3 8.7	89.7 101.0	█	█	ML	@ 2 feet, ALLUVIUM: LEAN CLAY with SAND , approximately 5% coarse grained sand, 10% medium grained sand, 15% fine grained sand, 70% clayey fines of low plasticity, gray-brown, dry, some pinhole and slightly larger porosity.	
10	16 21	2 9.0 10.3	100.1 102.2	█	█		@ 5 feet, SANDY SILT , approximately approximately 5% coarse grained sand, 10% medium grained sand, 15% fine grained sand, 70% silty fines with trace clay, gray-brown, some thin calcite stringers, porous and dry.	
15	25	2 8.3	99.7	█	█		@ 15 feet, moderately calcified, tan-white, remains porous and dry.	
20	42	10.5	106.4	█	█			
25	97 for 11"	11.3	116.7	█	█	CL	@ 25 feet, LEAN CLAY with SAND , approximately 5% coarse grained sand, 10% medium grained sand, 10% fine grained sand, 75% clayey fines of low plasticity, damp to moist, trace pinhole porosity, slightly indurated, red-brown.	
30	76	8.6	123.8	█	█		@ 30 feet, difficult drilling, water added to facilitate drilling.	
35	58	3.9	117.7	█	█		@ 35 feet, becomes moderately calcified, damp, tan-white.	
40	60	7.7	114.2	█	█		@ 40 feet, becomes red-brown, damp, some thin calcite stringers.	
45	75	8.6	119.4	█	█		@ 45 feet, decrease in clay content, trace calcite stringers.	
50	70	5.5	115.9	█	█	SM	@ 50 feet, SILTY SAND , approximately 5% gravel to 1/2", 20% coarse grained sand, 25% medium grained sand, 30% fine grained sand, 20% silty fines, yellow-brown, dry to damp.	
55							END OF BORING @ 51.5' Fill to 2' No groundwater No bedrock	


Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

PROJECT: Proposed Gas Station Canopy & Restaurant		PROJECT NUMBER: 12765.11	
CLIENT: Parmjit Singh		ELEVATION:	
LOR GEOTECHNICAL GROUP INC.		DATE DRILLED: October 26, 2018	
		EQUIPMENT: Mobile B-61	
		HOLE DIA.: 8"	ENCLOSURE: B-1

LOG OF BORING B-2

TEST DATA							U.S.C.S.	DESCRIPTION
DEPTH IN FEET	SPT BLOW COUNTS	LABORATORY TESTS	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	SAMPLE TYPE	LITHOLOGY		
0							ML	@ 0 feet, <u>FILL</u> : SANDY SILT, approximately 5% gravel to 1/2", 5% coarse grained sand, 10% medium grained sand, 10% fine grained sand, 70% silty fines, gray-brown, dry.
11	11		6.6	107.0			SM	@ 2 feet, SILTY SAND, approximately 25% coarse grained sand, 25% medium grained sand, 25% fine grained sand, 25% silty fines, brown, damp to moist.
5	6		11.2	96.5			ML	@ 5 feet, <u>ALLUVIUM</u> : SANDY SILT, approximately 15% fine grained sand, 85% silty fines, moist, brown, some pinhole porosity.
	12	2	8.1	97.3				@ 7 feet, becomes tan, dry, slightly larger than pinhole porosity.
10	18		7.1	104.9				@ 10 feet, trace thin calcite stringers.
	26		8.6	105.5				
15	33		6.8	102.0				@ 15 feet, becomes moderately calcite, tan-white, remains dry and slightly porous.
20	40		17.2	95.0				@ 20 feet, becomes moist.
25	59		8.3	117.0			CL	@ 25 feet, LEAN CLAY with SAND, approximately 5% coarse grained sand, 10% medium grained sand, 10% fine grained sand, 75% clayey fines of low plasticity, damp, red-brown, slightly indurated, some thin calcite stringers, trace pinhole porosity.
30								END OF BORING @ 26.5' Fill to 5' No groundwater No bedrock

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

PROJECT: Proposed Gas Station Canopy & Restaurant		PROJECT NUMBER: 12765.11	
CLIENT: Parmjit Singh		ELEVATION:	
		DATE DRILLED: October 26, 2018	
		EQUIPMENT: Mobile B-61	
		HOLE DIA.: 8"	ENCLOSURE: B-2

LOG OF BORING B-3

DEPTH IN FEET	TEST DATA				SAMPLE TYPE	LITHOLOGY	U.S.C.S.	DESCRIPTION
	SPT BLOW COUNTS	LABORATORY TESTS	MOISTURE CONTENT (%)	DRY DENSITY (PCF)				
0								
6			10.9	96.3	█		ML	@ 0 feet, <u>FILL</u> SANDY SILT, approximately 5% coarse grained sand, 5% medium grained sand, 15% fine grained sand, 75% silty fines, gray-brown, dry.
5	8		12.5	107.3	█			@ 2 feet, <u>ALLUVIUM</u> : SANDY SILT, approximately 5% coarse grained sand, 5% medium grained sand, 15% fine grained sand, 75% silty fines, brown, damp, some pinhole porosity and thin calcite stringers.
10	10		12.1	104.3	█			@ 5 feet, trace pinhole porosity, slightly calcified, tan-white, damp.
10	11		11.9	105.3	█			@ 7 feet, much less calcification as thin stringers, remains porous with pinhole and slightly larger porosity, damp.
15	16		8.1	106.3	█			
15	27		17.2	99.5	█			@ 15 feet, slight increase in calcification, gray-white, remains porous, moist.
20	27		17.1	101.3	█			
25	62		9.8	122.0	█	▨	CL	@ 25 feet, <u>LEAN CLAY</u> with SAND, approximately 5% coarse grained sand, 5% medium grained sand, 10% fine grained sand, 80% clayey fines of low plasticity, red-brown, damp to moist, trace pinhole porosity, trace thin calcite stringers, slightly indurated.
30								END OF BORING @ 26.5' Fill to 2' No groundwater No bedrock

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

PROJECT: Proposed Gas Station Canopy & Restaurant		PROJECT NUMBER: 12765.11	
CLIENT: Parmjit Singh		ELEVATION:	
<h2>LOR GEOTECHNICAL GROUP INC.</h2>		DATE DRILLED: October 26, 2018	
		EQUIPMENT: Mobile B-61	
		HOLE DIA.: 8"	ENCLOSURE: B-3

APPENDIX C

Laboratory Testing Program and Test Results

APPENDIX C LABORATORY TESTING

General

Selected soil samples obtained from the borings were tested in our geotechnical laboratory to evaluate the physical properties of the soils affecting foundation design and construction procedures. The laboratory testing program performed in conjunction with our investigation included moisture content, dry density, laboratory compaction, consolidation, direct shear, sieve analysis, sand equivalent, R-value, expansion index, Atterberg limits, and soluble sulfate content. Descriptions of the laboratory tests are presented in the following paragraphs:

Moisture Density Tests

The moisture content and dry density information provides an indirect measure of soil consistency for each stratum, and can also provide a correlation between soils on this site. The dry unit weight and field moisture content were determined for selected undisturbed samples, in accordance with ASTM D 2921 and ASTM D 2216, respectively, and the results are shown on the boring logs, Enclosures B-1 through B-3, for convenient correlation with the soil profile.

Laboratory Compaction

Selected soil samples were tested in the laboratory to determine compaction characteristics using the ASTM D 1557 compaction test method. The results are presented in the following table:

LABORATORY COMPACTION				
Boring Number	Sample Depth (feet)	Soil Description U.S.C.S.	Maximum Dry Density (pcf)	Optimum Moisture Content (percent)
B-1	1-3	(CL) Lean Clay with Sand	126.5	10.5

Consolidation Tests

The apparatus used for the consolidation tests (odometer) is designed to test a one-inch high portion of the undisturbed soil sample as contained in a sample ring. Porous stones and filler paper are placed in contact with the top and bottom of the specimen to permit the addition or release of water. Loads are applied to the test specimen in specified increments, and the resulting axial deformations are recorded. The results are plotted as log of axial pressure versus consolidation or compression, expressed as strain or sample height.

Samples are tested at field and greater-than field moisture contents. The results are shown on Enclosures C-1 through C-4.

Direct Shear Tests

Shear tests are performed in general accordance with ASTM D 3080 with a direct shear machine at a constant rate-of-strain (0.04 inches/minute). The machine is designed to test a sample partially extruded from a sample ring in single shear. Samples are tested at varying normal loads in order to evaluate the shear strength parameters, angle of internal friction and cohesion. Samples are tested in remolded condition (90 percent relative compaction per ASTM D 1557) and soaked, to represent the worse case conditions expected in the field.

The results of the shear tests are presented in the following table:

DIRECT SHEAR TESTS				
Boring Number	Sample Depth (feet)	Soil Description U.S.C.S.	Angle of Internal Friction (degrees)	Apparent Cohesion (psf)
B-1	1-3	(CL) Lean Clay with Sand	27	250

Sieve Analysis

A quantitative determination of the grain size distribution was performed for selected samples in accordance with the ASTM D 422 laboratory test procedure. The determination is performed by passing the soil through a series of sieves, and recording the weights of retained particles on each screen. The results of the sieve analyses are presented graphically on Enclosure C-5.

Sand Equivalent

The sand equivalent of selected soils were evaluated using the California Sand Equivalent Test Method, Caltrans Number 217. The results of the sand equivalent tests are presented with the grain size distribution analyses on Enclosure C-5.

R-Value Test

Soil samples were obtained at probable pavement subgrade level and sieve analysis and sand equivalent tests were conducted. Based on these indicator tests, a selected soil sample was tested to determine its R-value using the California R-Value Test Method, Caltrans Number 301. The results of the sieve analysis, sand equivalent, and R-value tests are presented on Enclosure C-5.

Expansion Index Tests

Remolded samples are tested to determine their expansion potential in accordance with the Expansion Index (EI) test. The test is performed in accordance with the Uniform Building Code Standard 18-2. The test results are presented in the following table:

EXPANSION INDEX TESTS				
Boring Number	Sample Depth (feet)	Soil Description U.S.C.S.	Expansion Index (EI)	Expansion Potential
B-1	1-3	(CL) Lean Clay with Sand	Low	34
Expansion Index: 0-20 21-50 51-90 91-130				
Expansion Potential: Very low Low Medium High				

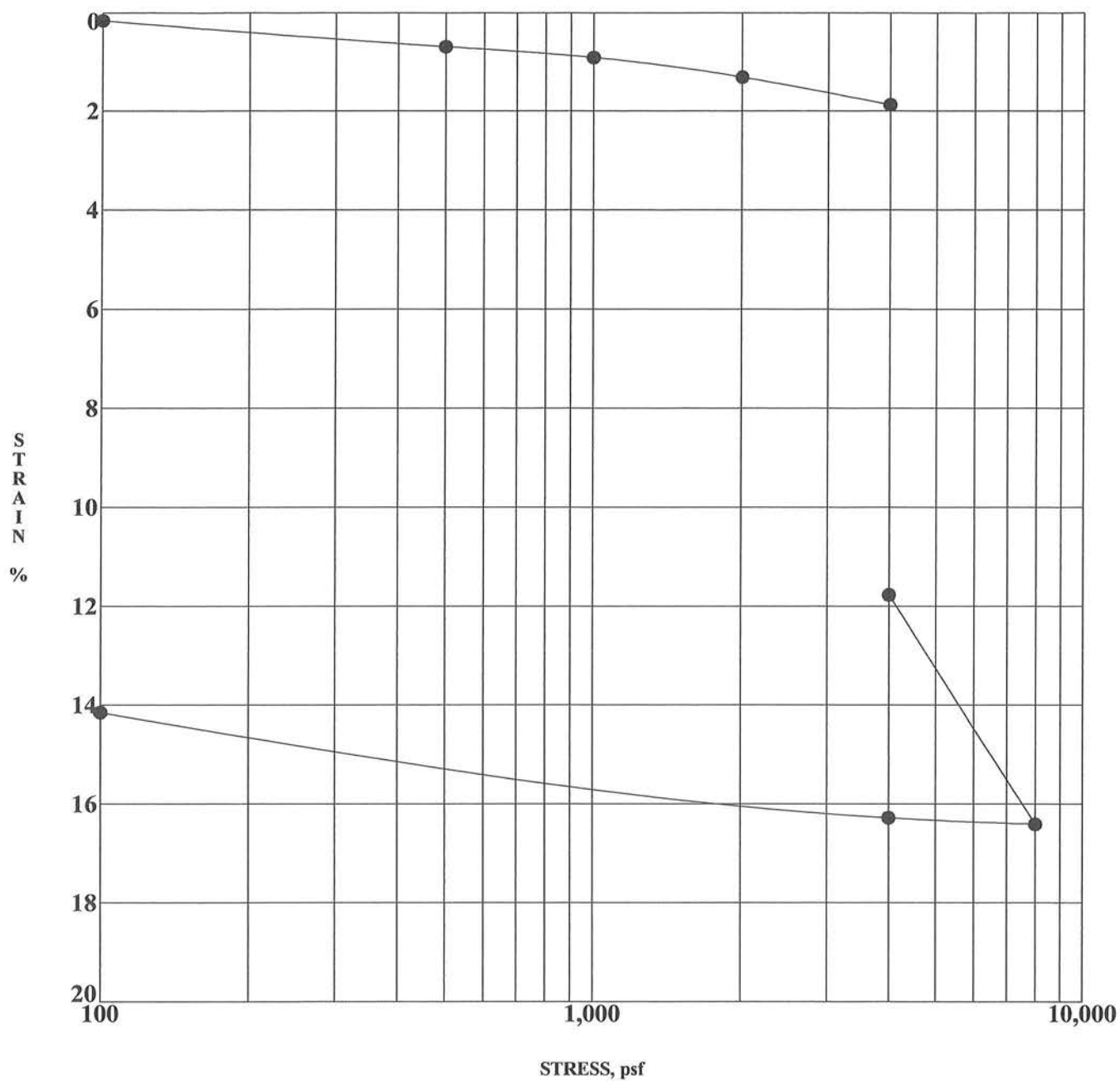
Atterberg Limits

Selected samples of the son-site fine grained soils were tested for their Atterberg limits in accordance with ASTM D 4318. The results of these tests are presented on Enclosure C-6.

Soluble Sulfate Content Tests

The soluble sulfate content of selected subgrade soils were evaluated. The concentration of soluble sulfates in the soils was determined by measuring the optical density of a barium sulfate precipitate. The precipitate results from a reaction of barium chloride with water extractions from the soil samples. The measured optical density is correlated with readings on precipitates of known sulfate concentrations. The test results are presented on the following table:

SOLUBLE SULFATE CONTENT TESTS			
Boring Number	Sample Depth (feet)	Soil Description U.S.C.S.	Sulfate Content (percent by weight)
B-1	1-3	(CL) Lean Clay with Sand	<0.005



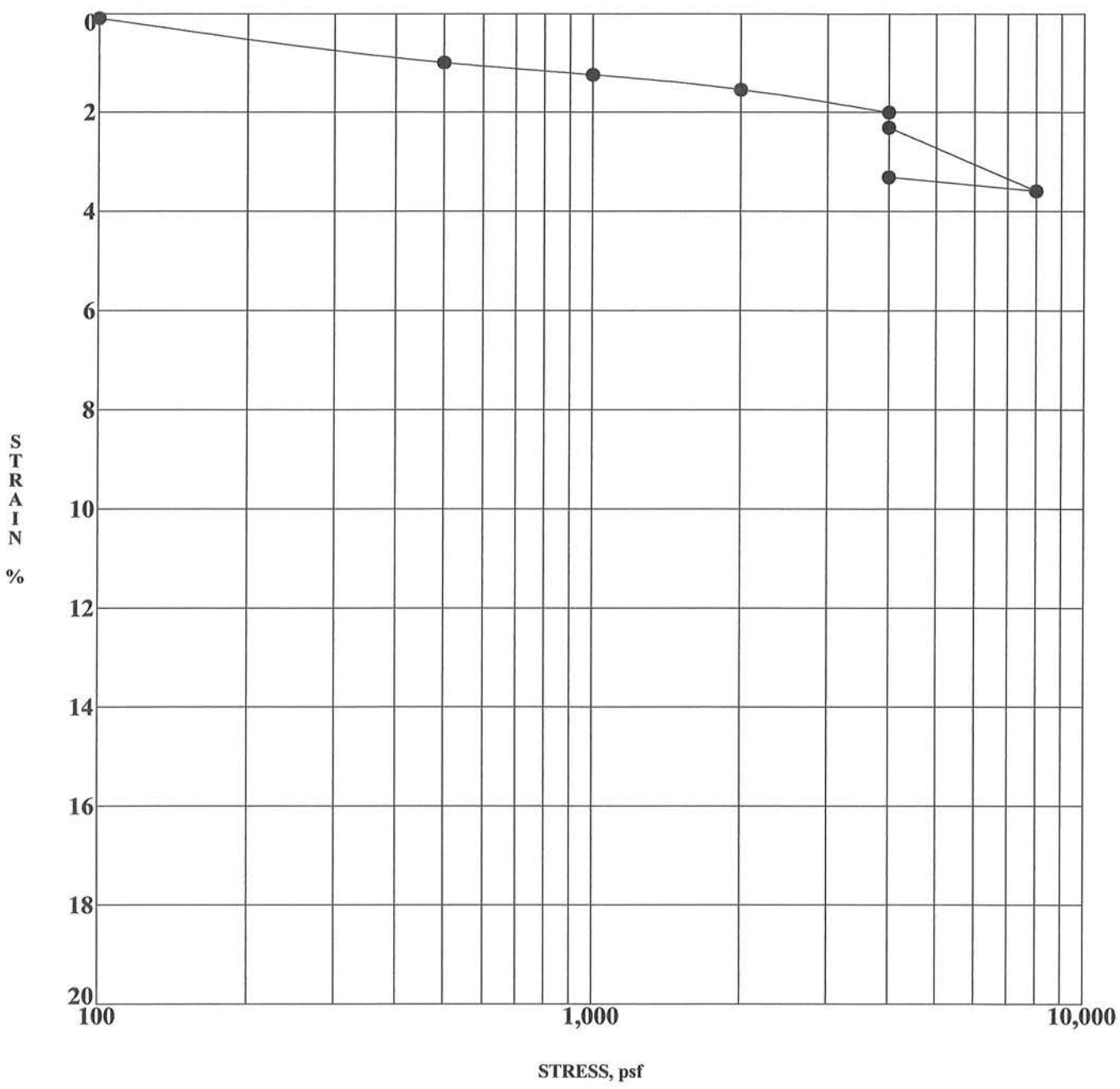
Specimen Identification	Classification	DD	MC%
● B-1 5.0	(ML) Sandy Silt	94	4

PROJECT Proposed Gas Station Canopy & Restaurant, Existing Farm Market PROJECT NO. 12765.11
 DATE 11/16/18

CONSOLIDATION TEST
 LOR Geotechnical Group, Inc.

ENCLOSURE C-1

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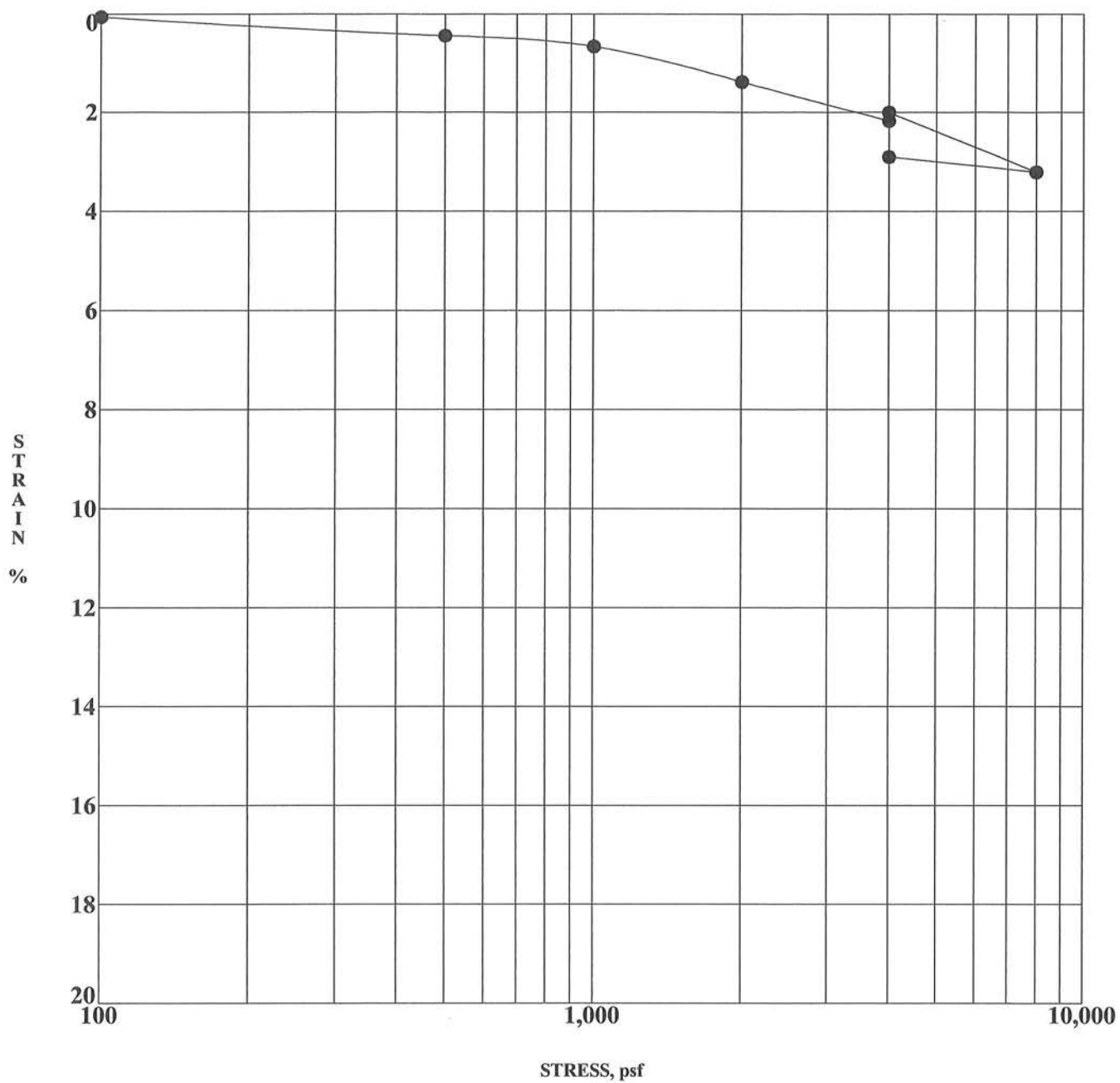
Specimen Identification	Classification	DD	MC%
● B-1 10.0	(ML) Sandy Silt	107	9

PROJECT Proposed Gas Station Canopy & Restaurant, Existing Farm Market PROJECT NO. 12765.11
 DATE 11/16/18

CONSOLIDATION TEST
 LOR Geotechnical Group, Inc.

ENCLOSURE C-2

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)



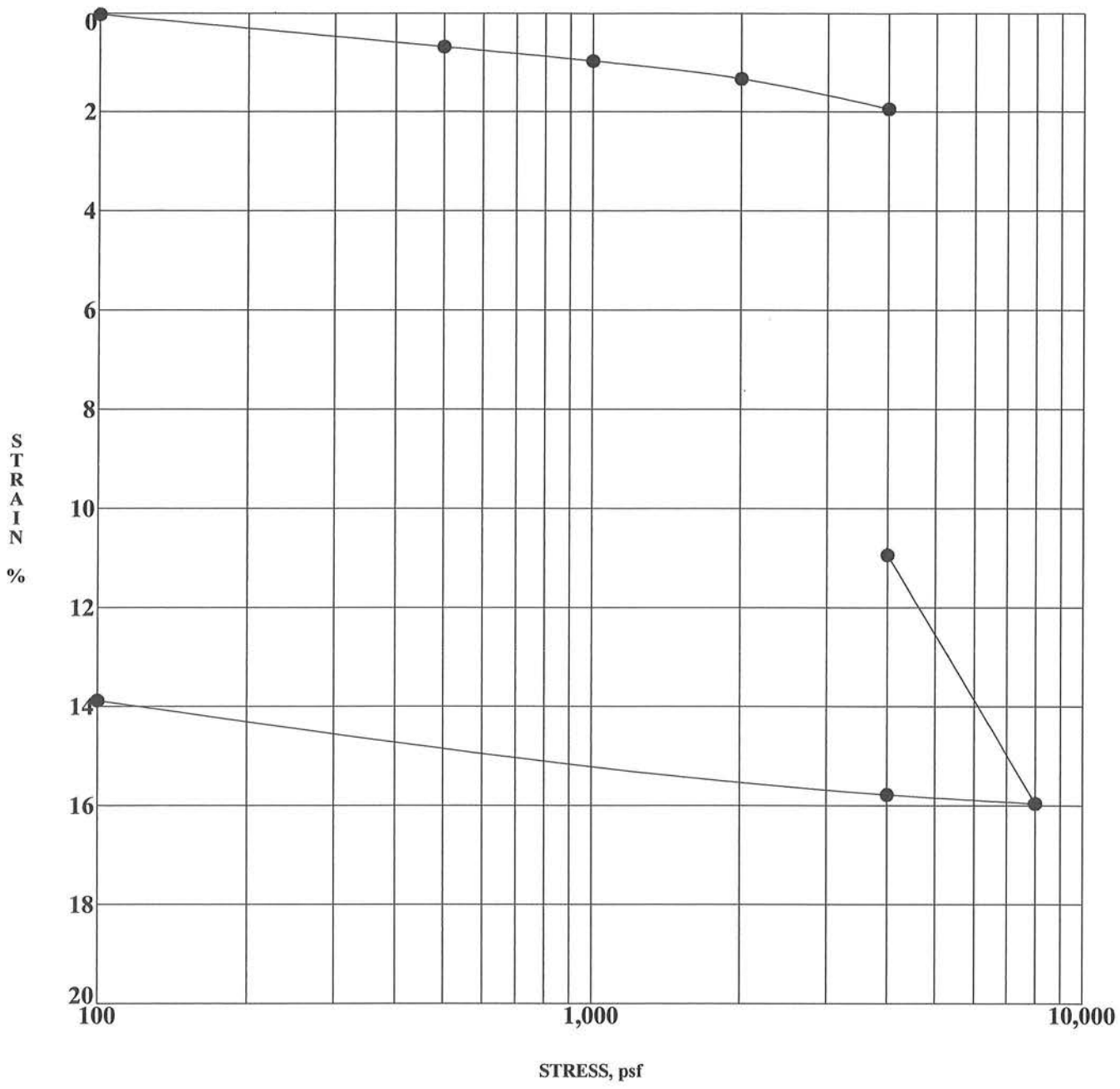
Specimen Identification			Classification	DD	MC%
●	B-1	15.0	(ML) Sandy Silt	102	8

PROJECT Proposed Gas Station Canopy & Restaurant, Existing Farm Market PROJECT NO. 12765.11
 DATE 11/16/18

CONSOLIDATION TEST
 LOR Geotechnical Group, Inc.

ENCLOSURE C-3

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)



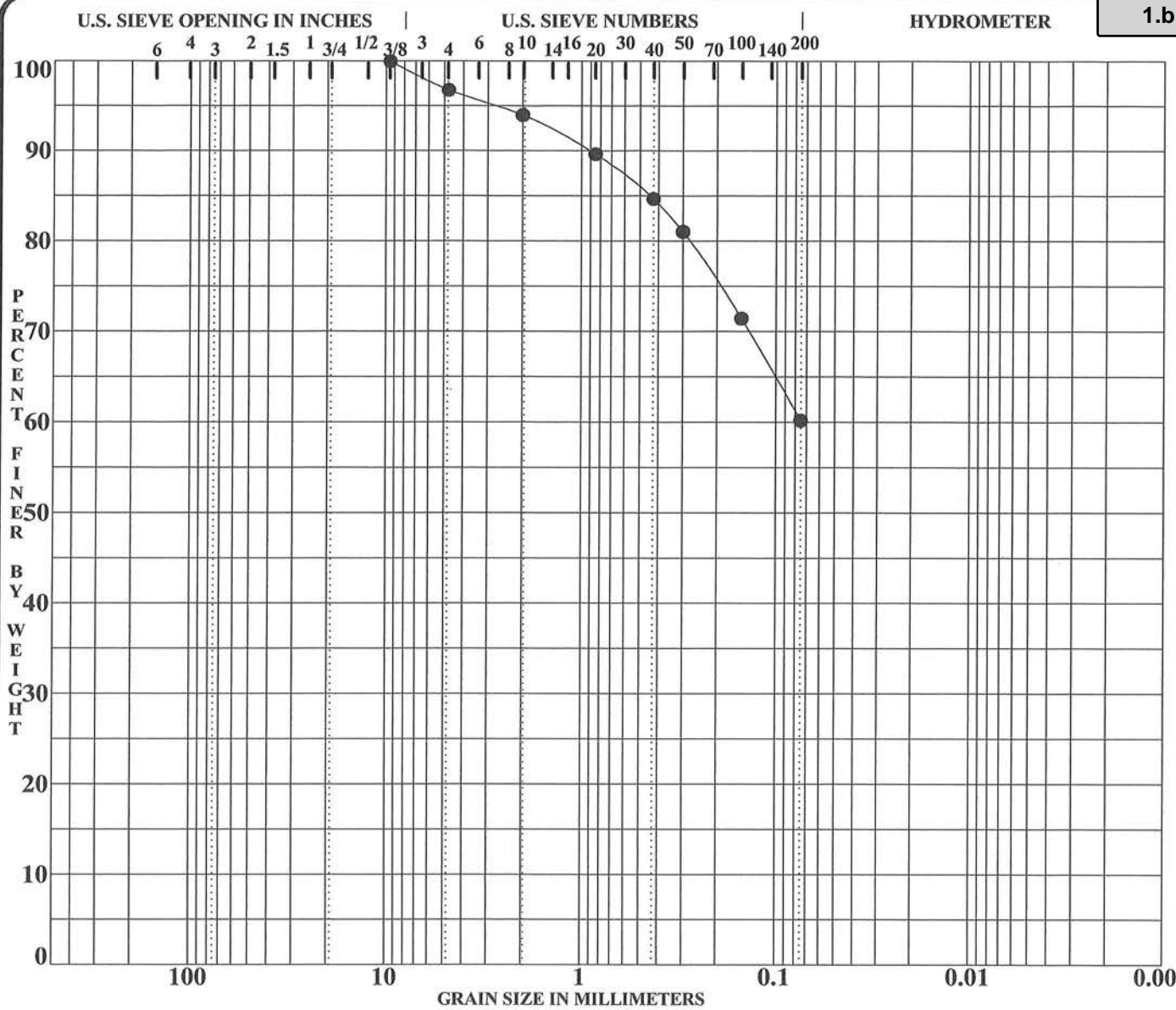
Specimen Identification		Classification	DD	MC%
●	B-2 7.0	(ML) Sandy Silt	91	8

PROJECT Proposed Gas Station Canopy & Restaurant, Existing Farm Market PROJECT NO. 12765.11
 DATE 11/16/18

CONSOLIDATION TEST
 LOR Geotechnical Group, Inc.

ENCLOSURE C-4

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification	Soil Classification	SE	RV	PL	PI	Cc	Cu
● RV-1 @ 0-3 ft	(ML) Sandy Silt	8	19				

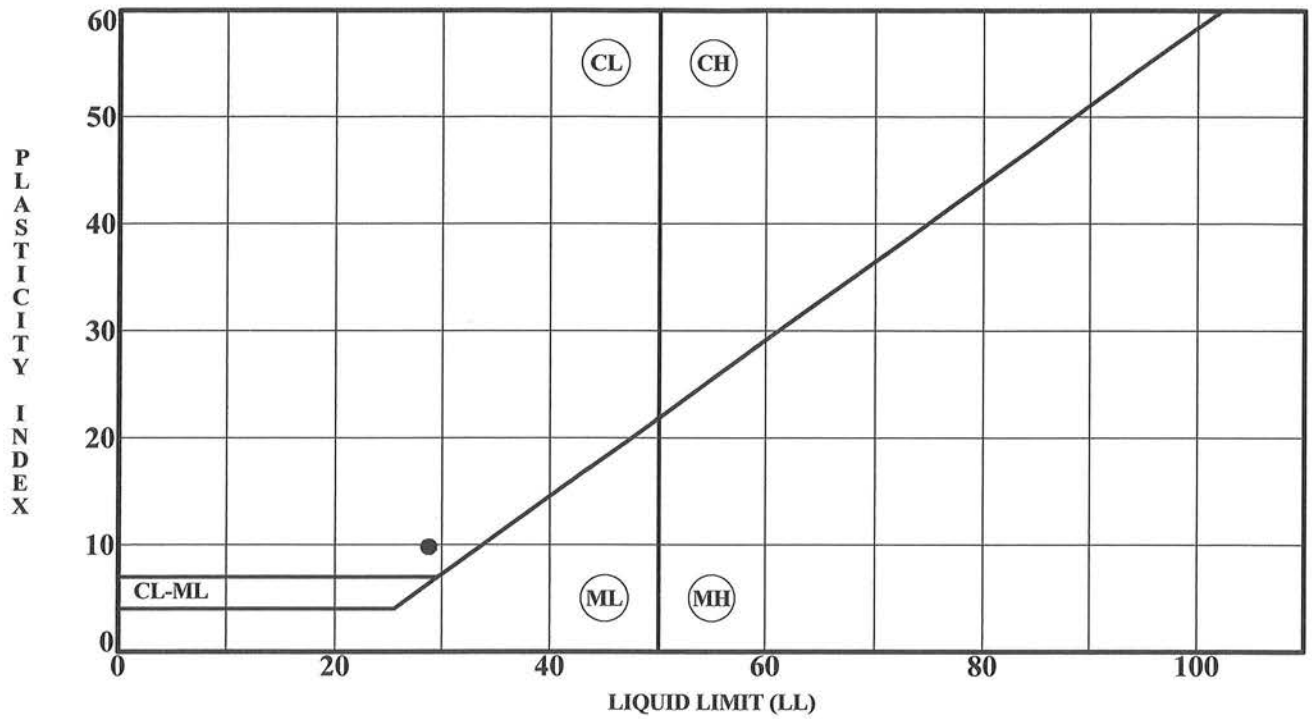
Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● RV-1 @ 0-3 ft	9.50				3.2	36.6	60.2	

PROJECT Proposed Gas Station Canopy & Restaurant, Existing Farm Market PROJECT NO. 12765.11
 DATE 11/16/18

GRADATION CURVES
 LOR Geotechnical Group, Inc.

ENCLOSURE C-5

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Specimen Identification	LL	PL	PI	Fines	Soil Classification
● B-1 @ 1 - 3 ft	29	19	10		(CL) Lean Clay with Sand

PROJECT Proposed Gas Station Canopy & Restaurant

PROJECT NO. 12765.11

DATE 11/20/18

ATTERBERG LIMITS' RESULTS
LOR Geotechnical Group, Inc.

ENCLOSURE C-6

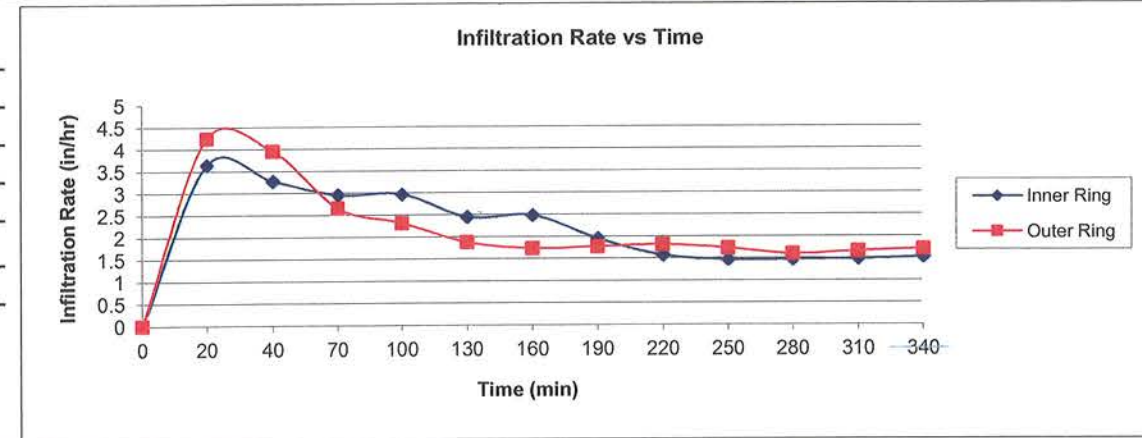
Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

APPENDIX D
Infiltration Test Results

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

DOUBLE RING INFILTRMETER TEST DATA

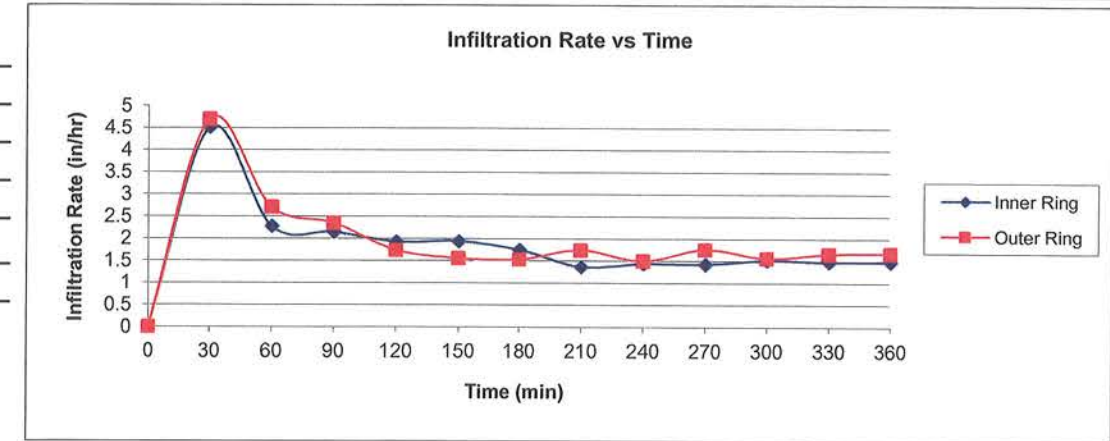
Project:	Proposed Gas Station and Restaurant	Test Date:	October 29, 2018
Project No.:	12765.11	Test Hole No.:	DRI-1
Soil Classification:	(ML) Sandy Silt	Test Hole Diameter:	12 in. inner, 24 in. annular
Depth of Test Hole:	4 ft.	Date Excavated:	October 29, 2018
Liquid Used:	Tap Water	pH:	7.8
Area of Rings:	Inner = 0.785 ft ² , Annular 2.36 ft ²	Depth of Water in Rings:	3.5 in
Tested By:	A.L.	Ring Penetration:	3.5 in
Liquid Level Maintained Using:	Vacuum Seal		
Depth to Water Table:	100 ft		



TEST PERIOD																
TRIAL NO.	INNER			ANNULAR SPACE			WATER USED (lbs.)		WATER USED (gal)		INFILTRATION RATE (gal/sf.day)		INFILTRATION RATE (in/hr)		LIQUID TEMP (°F)	REMARKS
	TIME	TIME INTERVAL (minutes)	TOTAL ELAPSED TIME (minutes)	TIME	TIME INTERVAL (minutes)	TOTAL ELAPSED TIME (minutes)	inner	annular space	inner	annular space	inner	annular space	inner	annular space		
1	S	8:40	20	20	8:40	20	4.94	17.28	0.593	2.074	54.4	63.3	3.6	4.2	64	
	E	9:00			9:00										65	
2	S	9:00	20	40	9:00	20	4.44	16.11	0.533	1.934	48.9	59.0	3.3	4.0	66	
	E	9:20			9:20										66	
3	S	9:22	30	70	9:22	30	6.01	16.24	0.721	1.950	44.1	39.7	3.0	2.7	67	refilled outer
	E	9:52			9:52										67	
4	S	9:52	30	100	9:52	30	6.03	14.14	0.724	1.697	44.3	34.5	3.0	2.3	68	
	E	10:22			10:22										68	
5	S	10:26	30	130	10:26	30	4.97	11.48	0.597	1.378	36.5	28.0	2.4	1.9	69	refilled outer
	E	10:56			10:56										69	
6	S	10:56	30	160	10:56	30	5.04	10.58	0.605	1.270	37.0	25.8	2.5	1.7	71	
	E	11:26			11:26										72	
7	S	11:26	30	190	11:26	30	3.96	10.81	0.475	1.298	29.1	26.4	1.9	1.8	73	
	E	11:56			11:56										74	
8	S	12:00	30	220	12:00	30	3.19	11.08	0.383	1.330	23.4	27.1	1.6	1.8	75	refilled outer
	E	12:30			12:30										75	
9	S	12:30	30	250	12:30	30	2.98	10.57	0.358	1.269	21.9	25.8	1.5	1.7	76	
	E	13:00			13:00										76	
10	S	13:00	30	280	13:00	30	2.99	9.77	0.359	1.173	21.9	23.9	1.5	1.6	77	
	E	13:30			13:30										77	
11	S	13:30	30	310	13:30	30	3.03	10.13	0.364	1.216	22.2	24.7	1.5	1.7	78	
	E	14:00			14:00										78	
12	S	14:00	30	340	14:00	30	3.09	10.43	0.371	1.252	22.7	25.5	1.5	1.7	78	
	E	14:30			14:30										78	

DOUBLE RING INFILTROMETER TEST DATA

Project:	Proposed Gas Station and Restaurant	Test Date:	October 29, 2018
Project No.:	12765.11	Test Hole No.:	DRI-2
Soil Classification:	(ML) Sandy Silt	Test Hole Diameter:	12 in. inner, 24 in. annular
Depth of Test Hole:	4 ft	Date Excavated:	October 29, 2018
Liquid Used:	Tap Water	pH:	7.8
Area of Rings:	Inner = 0.785 ft ² , Annular 2.36 ft ²	Depth of Water in Rings:	4 in
Tested By:	A.L.	Ring Penetration:	3.5 in
Liquid Level Maintained Using:	Vacuum Seal		
Depth to Water Table:	100 ft		

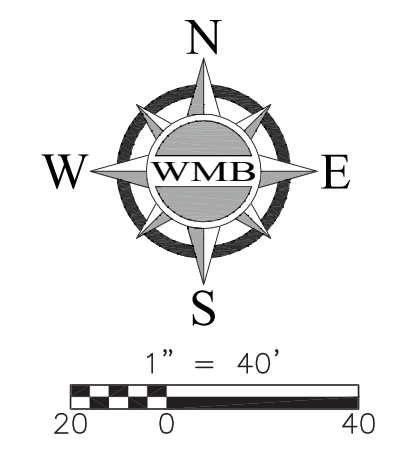
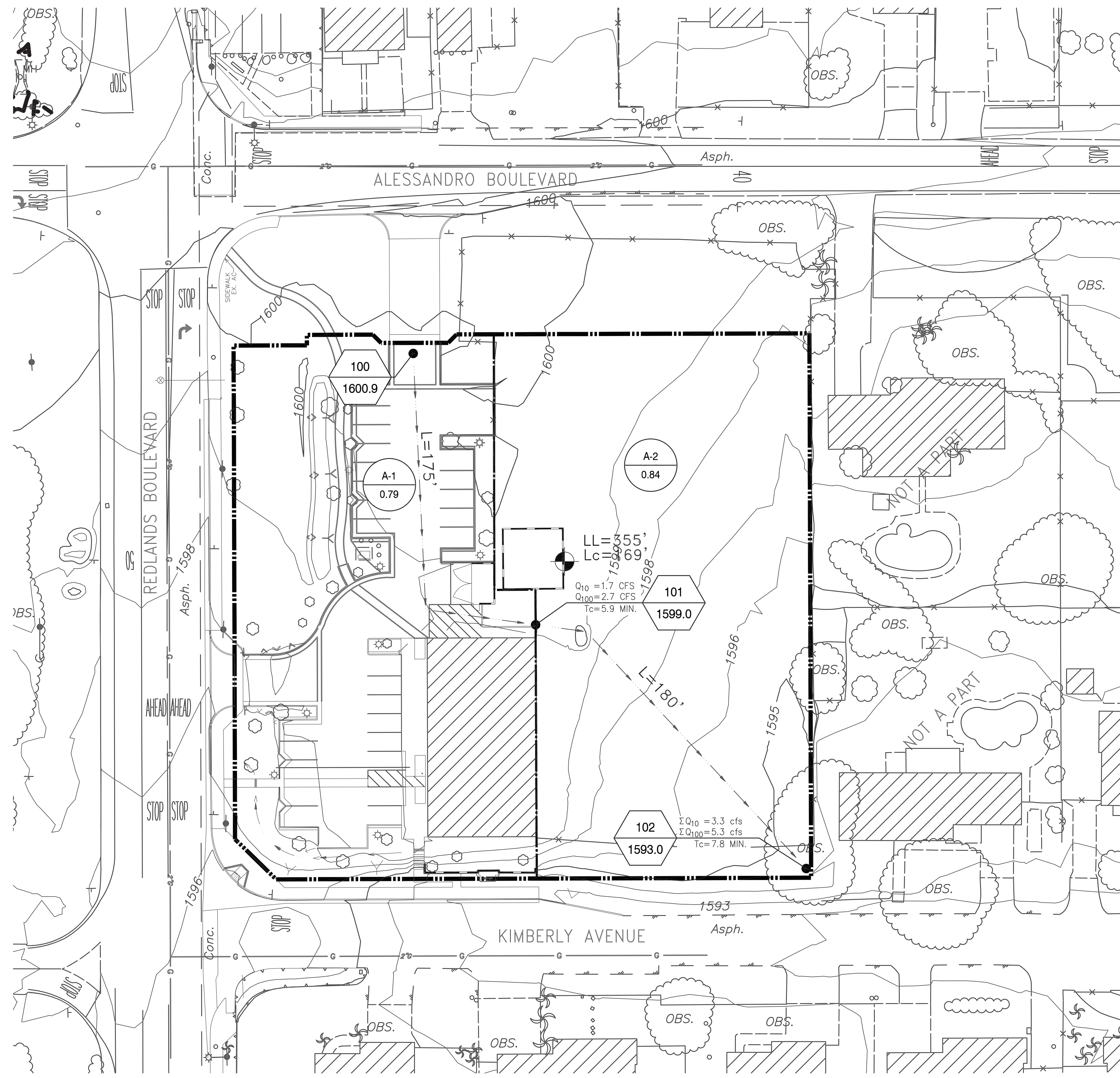


TEST PERIOD																
TRIAL NO.	INNER			ANNULAR SPACE			WATER USED (lbs.)		WATER USED (gal)		INFILTRATION RATE (gal/sf.day)		INFILTRATION RATE (in/hr)		LIQUID TEMP (°F)	REMARKS
	TIME	TIME INTERVAL (minutes)	TOTAL ELAPSED TIME (minutes)	TIME	TIME INTERVAL (minutes)	TOTAL ELAPSED TIME (minutes)	inner	annular space	inner	annular space	inner	annular space	inner	annular space		
1	S	8:58	30	8:58	30	30	9.18	28.71	1.102	3.447	67.4	70.1	4.5	4.7	65	
	E	9:28														
2	S	9:30	30	9:30	30	60	4.62	16.55	0.555	1.987	33.9	40.4	2.3	2.7	66	
	E	10:00														
3	S	10:00	30	10:00	30	90	4.36	14.34	0.523	1.721	32.0	35.0	2.1	2.3	67	refilled outer
	E	10:30														
4	S	10:34	30	10:34	30	120	3.92	10.61	0.471	1.274	28.8	25.9	1.9	1.7	68	
	E	11:04														
5	S	11:04	30	11:04	30	150	3.94	9.51	0.473	1.142	28.9	23.2	1.9	1.6	69	refilled outer
	E	11:34														
6	S	11:34	30	11:34	30	180	3.55	9.36	0.426	1.124	26.1	22.9	1.7	1.5	71	
	E	12:04														
7	S	12:08	30	12:08	30	210	2.77	10.62	0.333	1.275	20.3	25.9	1.4	1.7	73	refilled outer
	E	12:38														
8	S	12:38	30	12:38	30	240	2.92	9.15	0.351	1.098	21.4	22.3	1.4	1.5	75	
	E	13:08														
9	S	13:08	30	13:08	30	270	2.90	10.73	0.348	1.288	21.3	26.2	1.4	1.8	76	
	E	13:38														
10	S	13:38	30	13:38	30	300	3.08	9.55	0.370	1.146	22.6	23.3	1.5	1.6	77	
	E	14:08														
11	S	14:10	30	14:10	30	330	3.01	10.14	0.361	1.217	22.1	24.8	1.5	1.7	78	refilled outer
	E	14:40														
12	S	14:40	30	14:40	30	360	3.02	10.22	0.363	1.227	22.2	25.0	1.5	1.7	79	
	E	15:10														

SECTION 5 - Hydrology Maps

- Existing Hydrology Map
- Proposed Hydrology Map

EXISTING CONDITION HYDROLOGY MAP FARM MARKET EXPANSION AND GAS STATION



LEGEND

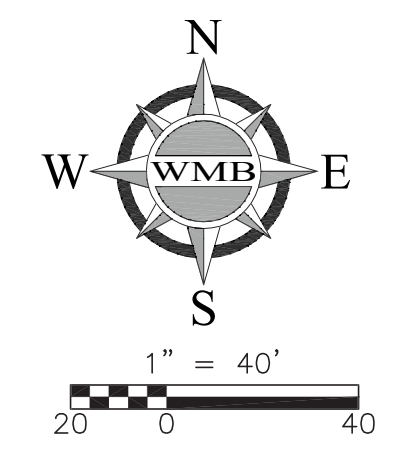
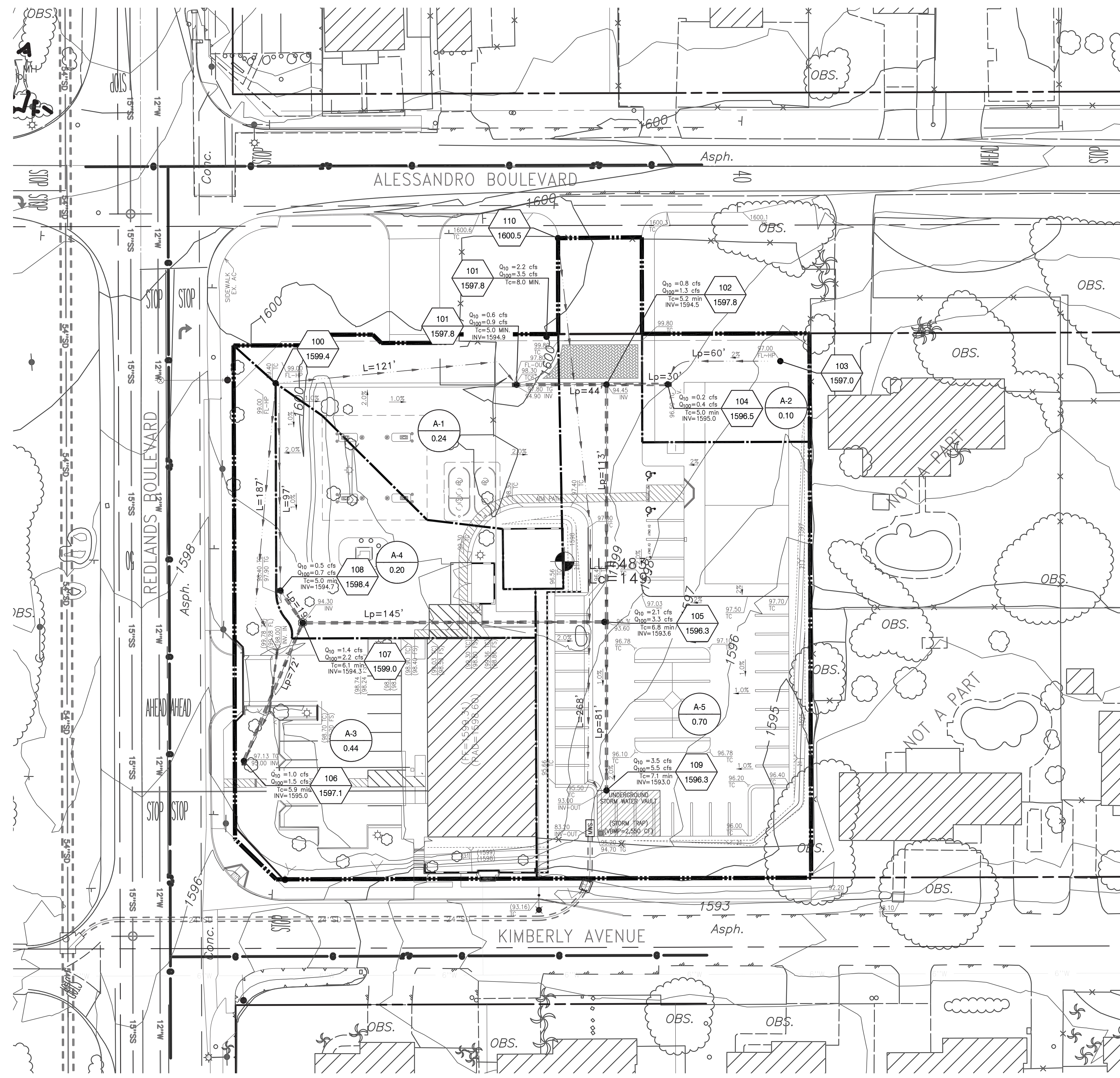
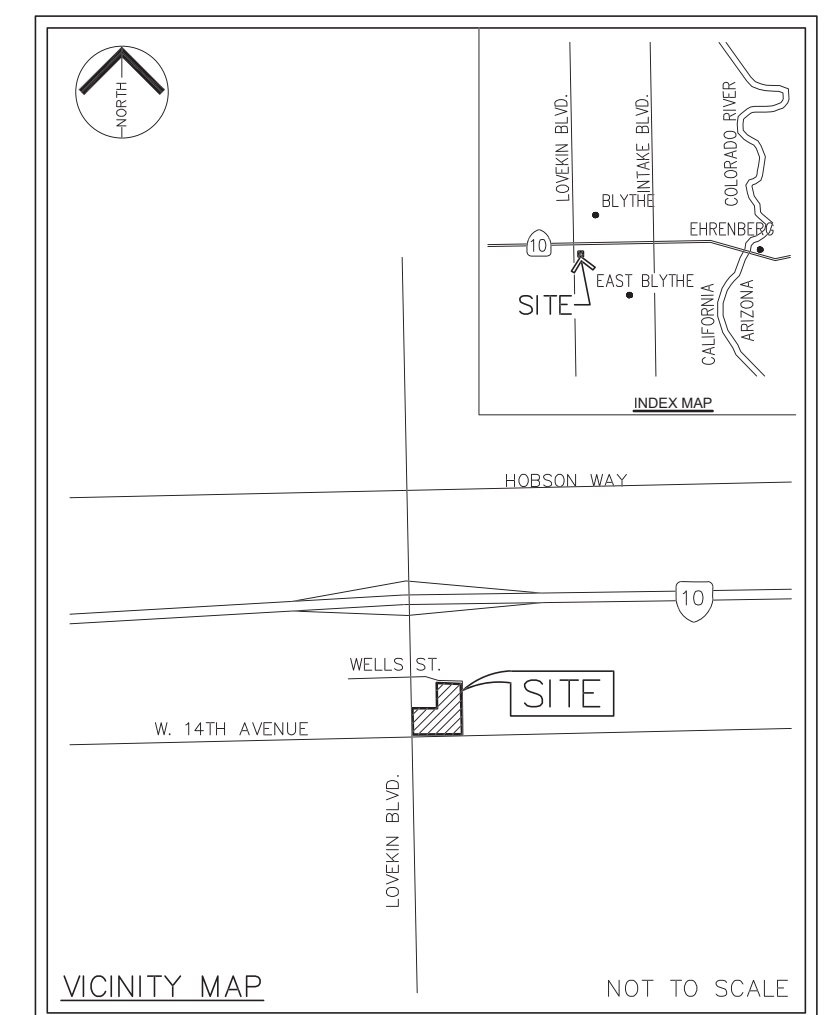
- MAJOR DRAINAGE BOUNDARY
- MINOR DRAINAGE BOUNDARY
- TRACT BOUNDARY
- SOILS GROUP BOUNDARY
- SOILS GROUP
- NODE NUMBER
- NODE ELEVATION
- AREA DESIGNATION
- AREA ACREAGE (IN ACRES)
- $Q_{10} = x$ cfs
 $Q_{100} = x$ cfs
 $T_c = 15.0$ min.
- $?Q_{10} = x$ cfs
 $?Q_{100} = x$ cfs
 $T_c = 15.0$ min.
- AREA "A"** AREA DESIGNATION
- LL - LONGEST LENGTH OF FLOW
- LC - LENGTH TO CENTROID
- CENTROID

**10458 REDLANDS BOULEVARD
FARM MARKET EXPANSION AND GAS STATION
EXISTING CONDITION HYDROLOGY MAP
CITY OF MORENO VALLEY**

SCALE: 1" = 40' DATE: 7/23/2020 DESIGNED: BRL CHECKED: MWB PLN CK REF: F.B.	W.O. 1103 SHEET 1 OF 2 SHEETS DWG. NO.
--	--

WMB & ASSOCIATES
 SURVEYING ENGINEERING PLANNING
 22421 BARTON ROAD #125
 GRAND TERRACE, CA 92513 (951)533-1871
 SURVEYING/ENGINEERING/PLANNING

PROPOSED CONDITION HYDROLOGY MAP FARM MARKET EXPANSION AND GAS STATION



LEGEND

- MAJOR DRAINAGE BOUNDARY
- MINOR DRAINAGE BOUNDARY
- TRACT BOUNDARY
- - - - - SOILS GROUP BOUNDARY
- B
C
C SOILS GROUP
- 10 NODE NUMBER
- 1150.0 NODE ELEVATION
- A-1 AREA DESIGNATION
- 0.9 AREA ACREAGE (IN ACRES)
- Q₁₀ = x cfs 10 YEAR STORM FLOW
- Q₁₀₀ = x cfs 100 YEAR STORM FLOW
- T = 15.0 min. TIME OF CONCENTRATION (Q₁₀₀)
- ?Q₁₀ = x cfs 10 YEAR STORM FLOW CONFLUENCE
- ?Q₁₀₀ = x cfs 100 YEAR STORM FLOW CONFLUENCE
- T = 15.0 min. TIME OF CONCENTRATION (Q₁₀₀)
- AREA "A" AREA DESIGNATION
- LL - LONGEST LENGTH OF FLOW
- LC - LENGTH TO CENTROID
- ⊙ - CENTROID

**10458 REDLANDS BOULEVARD
FARM MARKET EXPANSION AND GAS STATION
PROPOSED CONDITION HYDROLOGY MAP
CITY OF MORENO VALLEY**

SCALE: 1" = 40'
DATE: 7/23/2020
DESIGNED: BRL
CHECKED: MWB
PLN CK REF:
F.B.

WMB & ASSOCIATES
SURVEYING ENGINEERING PLANNING
22421 BARTON ROAD #125
GRAND TERRACE, CA 92313 (951) 533-1871
SURVEYING/ENGINEERING/PLANNING

W.O. 1103
SHEET 2
OF 2 SHEETS
DWG. NO.

Appendix G - Noise Impact Study

Farm Market Improvement Development Noise Impact Study

City of Moreno Valley, CA

Prepared for:

Heady Design, Inc

Harry Heady
7365 carnelian St., Ste 233
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Prepared by:

MD Acoustics, LLC

Mike Dickerson, INCE
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1197 Los Angeles Avenue, Ste 256
Simi Valley, CA 93065

Date: 10/3/2019



Noise Study Reports | Vibration Studies | Air Quality | Greenhouse Gas | Health Risk Assessments

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1.0 Introduction

1.1 Purpose of Analysis and Study Objectives

This purpose of this noise impact study is to evaluate the potential noise impacts for the project study area and compare results to City and CEQA thresholds. The assessment was conducted and compared to the noise standards set forth by the Federal, State and Local agencies. Consistent with the California Environmental Quality Act (CEQA) and CEQA Guidelines, a significant impact related to noise would occur if a proposed project is determined to result in:

- Exposure of persons to or generation of noise levels in excess of standards established in the local General Plan or noise ordinance, or applicable agencies.
- Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels.
- A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.
- A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

The following is provided in this report:

- A description of the study area and the proposed project
- Information regarding the fundamentals of noise
- A description of the local noise guidelines and standards
- An evaluation of the existing ambient noise environment
- An analysis of stationary noise impacts from the project site to adjacent land uses
- Construction noise and vibration evaluation

1.2 Site Location and Study Area

The project site is located at the southeast corner of Redlands Boulevard and Alessandro Boulevard, in the City of Moreno Valley, CA as shown in Exhibit A. The land uses directly surrounding the project includes residential to the North, South and East, with commercial use to the west.

1.3 Proposed Project Description

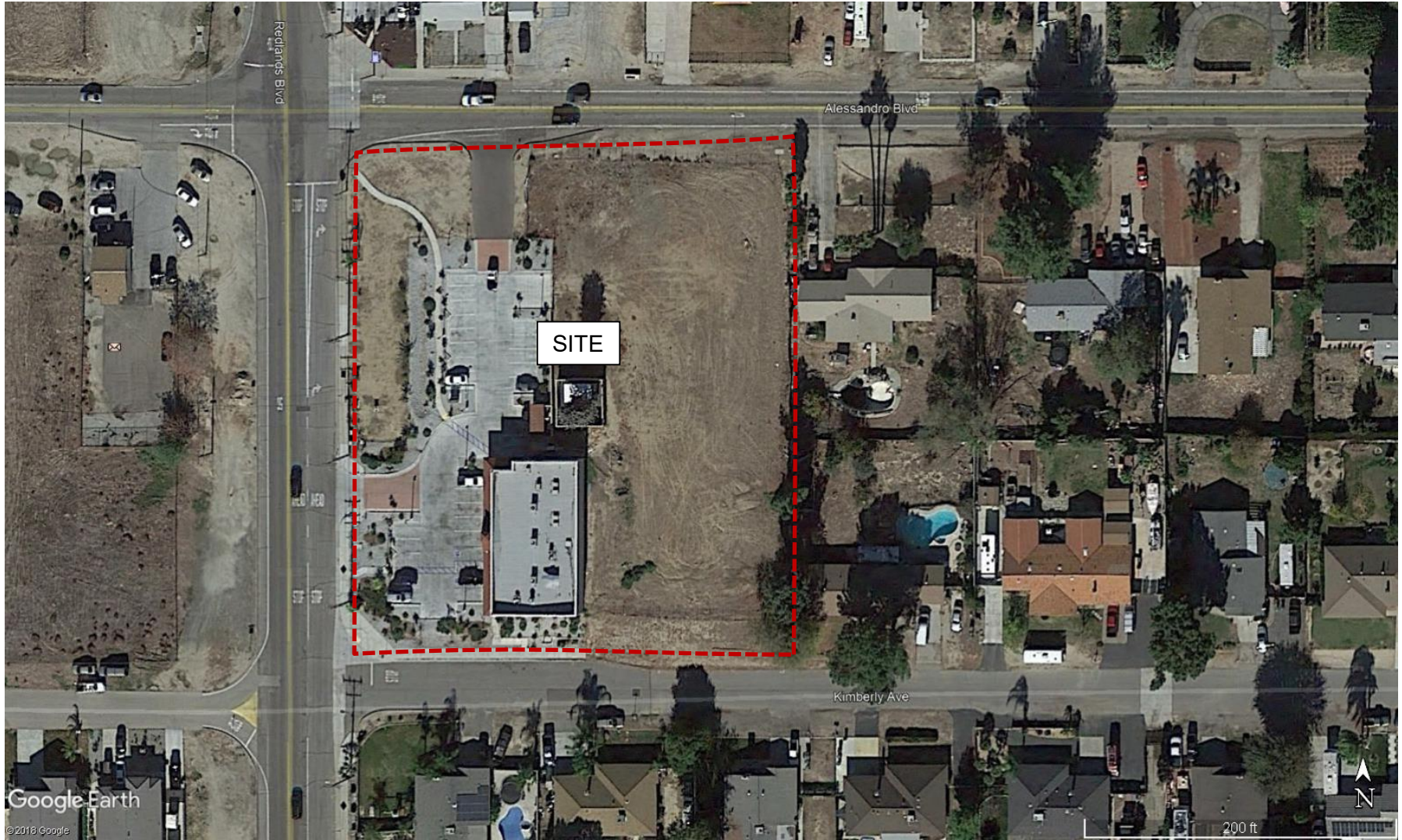
The proposed project currently has an existing Farm Market store and cell tower and proposes to add the following:

- 2,00 square feet of commercial building;
- 2,500 square feet of restaurant;
- Gas station with 8 vehicle fueling station;

The proposed project is located at the southeast corner of the intersection of Redlands Boulevard and Alessandro Boulevard. The site is currently zoned Village Commercial (VC) and classified as Commercial

Land Use according to the City of Moreno Valley General Plan Land Use Map. The proposed project land use is permitted in the zone and does not require a zone change. The site plan used for this is illustrated in Exhibit B.

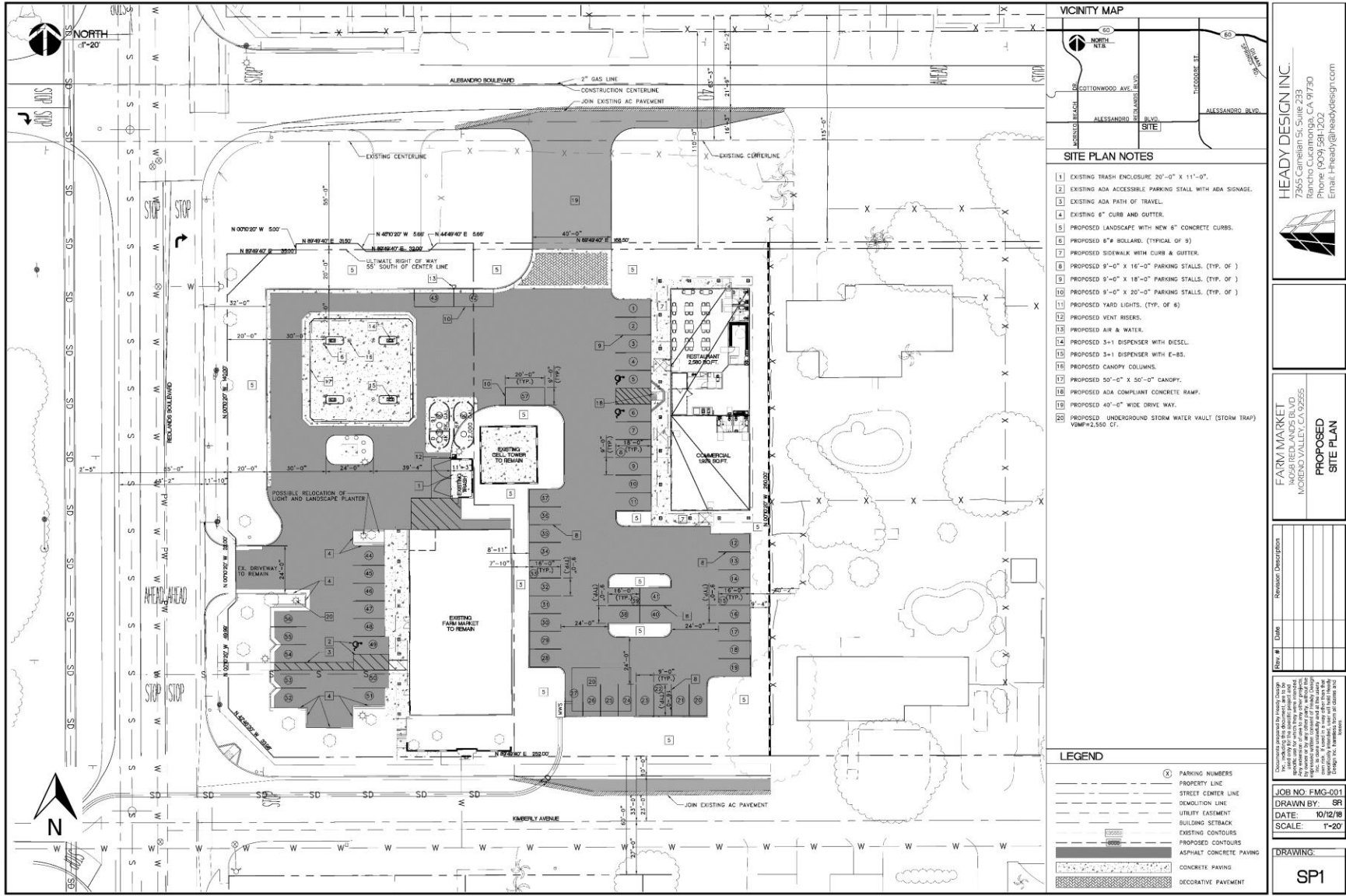
Exhibit A
Location Map



Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET

Exhibit E
 Site Plan

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET



HEADY DESIGN INC.
 7365 Camelian St, Suite 238
 Rancho Cucamonga, CA 91730
 Phone: (909) 5841202
 Email: fheady@headydesign.com



FARM MARKET
 14058 REDLANDS BLVD
 MORENO VALLEY, CA 92555
**PROPOSED
 SITE PLAN**

Rev #	Date	Revision Description

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 SCALE: 1"=20'

DRAWING:
SP1

2.0 Fundamentals of Noise

This section of the report provides basic information about noise and presents some of the terms used in the report.

2.1 Sound, Noise and Acoustics

Sound is a disturbance created by a moving or vibrating source and is capable of being detected by the hearing organs. Sound may be thought of as mechanical energy of a moving object transmitted by pressure waves through a medium to a human ear. For traffic or stationary noise, the medium of concern is air. *Noise* is defined as sound that is loud, unpleasant, unexpected, or unwanted.

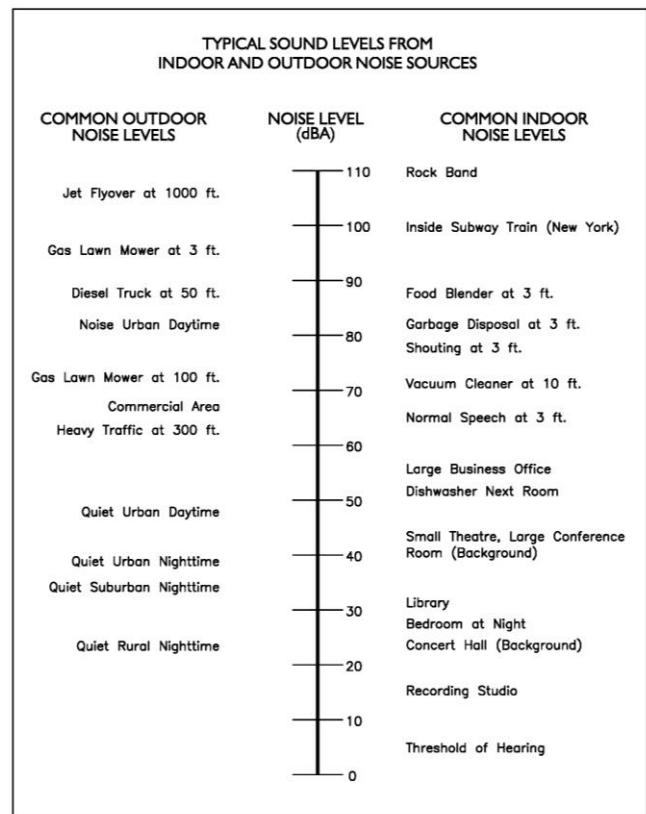
2.2 Frequency and Hertz

A continuous sound is described by its *frequency* (pitch) and its *amplitude* (loudness). Frequency relates to the number of pressure oscillations per second. Low-frequency sounds are low in pitch (bass sounding) and high-frequency sounds are high in pitch (squeak). These oscillations per second (cycles) are commonly referred to as Hertz (Hz). The human ear can hear from the bass pitch starting out at 20 Hz all the way to the high pitch of 20,000 Hz.

2.3 Sound Pressure Levels and Decibels

The *amplitude* of a sound determines its loudness. The loudness of sound increases or decreases as the amplitude increases or decreases. Sound pressure amplitude is measured in units of micro-Newton per square inch meter ($\mu\text{N}/\text{m}^2$), also called micro-Pascal (μPa). One μPa is approximately one hundred billionths (0.0000000001) of normal atmospheric pressure. Sound pressure level (SPL or L_p) is used to describe in logarithmic units the ratio of actual sound pressures to a reference pressure squared. These units are called decibels, abbreviated dB. Exhibit C illustrates references sound levels for different noise sources.

Exhibit C: Typical A-Weighted Noise Levels



2.4 Addition of Decibels

Because decibels are on a logarithmic scale, sound pressure levels cannot be added or subtracted by simple plus or minus addition. When two sounds of equal SPL are combined, they will produce an SPL 3 dB greater than the original single SPL. In other words, sound energy must be doubled to produce a 3 dB increase. If two sounds differ by approximately 10 dB, the higher sound level is the predominant sound.

2.5 Human Response to Changes in Noise Levels

In general, the healthy human ear is most sensitive to sounds between 1,000 Hz and 5,000 Hz, and it perceives a sound within that range as being more intense than a sound with a higher or lower frequency with the same magnitude. For purposes of this report as well as with most environmental documents, the A-scale weighting is typically reported in terms of A-weighted decibel (dBA), a scale designed to account for the frequency-dependent sensitivity of the ear. Typically, the human ear can barely perceive a change in noise level of 3 dB. A change in 5 dB is readily perceptible, and a change in 10 dB is perceived as being twice or half as loud. As previously discussed, a doubling of sound energy results in a 3 dB increase in sound, which means that a doubling of sound energy (e.g. doubling the volume of traffic on a highway) would result in a barely perceptible change in sound level.

2.6 Noise Descriptors

Noise in our daily environment fluctuates over time. Some noise levels occur in regular patterns, others are random. Some noise levels are constant while others are sporadic. Noise descriptors were created to describe the different time-varying noise levels.

A-Weighted Sound Level: The sound pressure level in decibels as measured on a sound level meter using the A-weighted filter network. The A-weighting filter de-emphasizes the very low and very high-frequency components of the sound in a manner similar to the response of the human ear. A numerical method of rating human judgment of loudness.

Ambient Noise Level: The composite of noise from all sources, near and far. In this context, the ambient noise level constitutes the normal or existing level of environmental noise at a given location.

Community Noise Equivalent Level (CNEL): The average equivalent A-weighted sound level during a 24-hour day, obtained after addition of five (5) decibels to sound levels in the evening from 7:00 to 10:00 PM and after addition of ten (10) decibels to sound levels in the night before 7:00 AM and after 10:00 PM.

Decibel (dB): A unit for measuring the amplitude of a sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micro-pascals.

dB(A): A-weighted sound level (see definition above).

Equivalent Sound Level (LEQ): The sound level corresponding to a steady noise level over a given sample period with the same amount of acoustic energy as the actual time-varying noise level. The energy average noise level during the sample period.

Habitable Room: Any room meeting the requirements of the Uniform Building Code, or other applicable regulations, which is intended to be used for sleeping, living, cooking or dining purposes, excluding such enclosed spaces as closets, pantries, bath or toilet rooms, service rooms, connecting corridors, laundries, unfinished attics, foyers, storage spaces, cellars, utility rooms and similar spaces.

L(n): The A-weighted sound level exceeded during a certain percentage of the sample time. For example, L10 in the sound level exceeded 10 percent of the sample time. Similarly L50, L90, and L99, etc.

Noise: Any unwanted sound or sound which is undesirable because it interferes with speech and hearing, or is intense enough to damage hearing, or is otherwise annoying. The State Noise Control Act defines noise as "...excessive undesirable sound...".

Outdoor Living Area: Outdoor spaces that are associated with residential land uses typically used for passive recreational activities or other noise-sensitive uses. Such spaces include patio areas, barbecue areas, jacuzzi areas, etc. associated with residential uses; outdoor patient recovery or resting areas associated with hospitals, convalescent hospitals, or rest homes; outdoor areas associated with places of worship which have a significant role in services or other noise-sensitive activities; and outdoor school facilities routinely used for educational purposes which may be adversely impacted by noise. Outdoor areas usually not included in this definition are: front yard areas, driveways, greenbelts, maintenance areas and storage areas associated with residential land uses; exterior areas at hospitals that are not used for patient activities; outdoor areas associated with places of worship and principally used for short-term social gatherings; and, outdoor areas associated with school facilities that are not typically associated with educational uses prone to adverse noise impacts (for example, school play yard areas).

Percent Noise Levels: See L(n).

Sound Level (Noise Level): The weighted sound pressure level obtained by use of a sound level meter having a standard frequency filter for attenuating part of the sound spectrum.

Sound Level Meter: An instrument, including a microphone, an amplifier, an output meter, and frequency weighting networks for the measurement and determination of noise and sound levels.

Single Event Noise Exposure Level (SENEL): The dB(A) level which, if it lasted for one second, would produce the same A-weighted sound energy as the actual event.

2.7 Traffic Noise Prediction

Noise levels associated with traffic depends on a variety of factors: (1) volume of traffic, (2) speed of traffic, (3) auto, medium truck (2–3 axle) and heavy truck percentage (4 axle and greater), and sound propagation. The greater the volume of traffic, higher speeds and truck percentages equate to a louder volume in noise. A doubling of the Average Daily Traffic (ADT) along a roadway will increase noise levels by approximately 3 dB; reasons for this are discussed in the sections above.

2.8 Sound Propagation

As sound propagates from a source it spreads geometrically. Sound from a small, localized source (i.e., a point source) radiates uniformly outward as it travels away from the source in a spherical pattern. The sound level attenuates at a rate of 6 dB per doubling of distance. The movement of vehicles down a roadway makes the source of the sound appear to propagate from a line (i.e., line source) rather than a point source. This line source results in the noise propagating from a roadway in a cylindrical spreading versus a spherical spreading that results from a point source. The sound level attenuates for a line source at a rate of 3 dB per doubling of distance.

As noise propagates from the source, it is affected by the ground and atmosphere. Noise models use hard site (reflective surfaces) and soft site (absorptive surfaces) to help calculate predicted noise levels. Hard site conditions assume no excessive ground absorption between the noise source and the

receiver. Soft site conditions such as grass, soft dirt or landscaping attenuate noise at a rate of 1.5 dB per doubling of distance. When added to the geometric spreading, the excess ground attenuation results in an overall noise attenuation of 4.5 dB per doubling of distance for a line source and 7.5 dB per doubling of distance for a point source.

Research has demonstrated that atmospheric conditions can have a significant effect on noise levels when noise receivers are located 200 feet from a noise source. Wind, temperature, air humidity, and turbulence can further impact how far sound can travel.

3.0 Ground-Borne Vibration Fundamentals

3.1 Vibration Descriptors

Ground-borne vibrations consist of rapidly fluctuating motions within the ground that have an average motion of zero. The effects of ground-borne vibrations typically only cause a nuisance to people, but at extreme vibration levels, damage to buildings may occur. Although ground-borne vibration can be felt outdoors, it is typically only an annoyance to people indoors where the associated effects of the shaking of a building can be notable. Ground-borne noise is an effect of ground-borne vibration and only exists indoors since it is produced from noise radiated from the motion of the walls and floors of a room and may also consist of the rattling of windows or dishes on shelves.

Several different methods are used to quantify vibration amplitude.

PPV – Known as the peak particle velocity (PPV) which is the maximum instantaneous peak in vibration velocity, typically given in inches per second.

RMS – Known as root mean squared (RMS) can be used to denote vibration amplitude

VdB – A commonly used abbreviation to describe the vibration level (VdB) for a vibration source.

3.2 Vibration Perception

Typically, developed areas are continuously affected by vibration velocities of 50 VdB or lower. These continuous vibrations are not noticeable to humans whose threshold of perception is around 65 VdB. Outdoor sources that may produce perceptible vibrations are usually caused by construction equipment, steel-wheeled trains, and traffic on rough roads, while smooth roads rarely produce perceptible ground-borne noise or vibration. To counter the effects of ground-borne vibration, the Federal Transit Administration (FTA) has published guidance relative to vibration impacts. According to the FTA, fragile buildings can be exposed to ground-borne vibration levels of 0.3 inches per second without experiencing structural damage.

3.3 Vibration Propagation

There are three main types of vibration propagation: surface, compression, and shear waves. Surface waves, or Rayleigh waves, travel along the ground's surface. These waves carry most of their energy along an expanding circular wavefront, similar to ripples produced by throwing a rock into a pool of water. P-waves, or compression waves, are body waves that carry their energy along an expanding spherical wavefront. The particle motion in these waves is longitudinal (i.e., in a "push-pull" fashion). P-waves are analogous to airborne sound waves. S-waves, or shear waves, are also body waves that carry energy along an expanding spherical wavefront. However, unlike P-waves, the particle motion is transverse, or side-to-side and perpendicular to the direction of propagation.

As vibration waves propagate from a source, the vibration energy decreases in a logarithmic nature and the vibration levels typically decrease by 6 VdB per doubling of the distance from the vibration source. As stated above, this drop-off rate can vary greatly depending on the soil but has been shown to be effective enough for screening purposes, in order to identify potential vibration impacts that may need to be studied through actual field tests.

4.0 Regulatory Setting

The proposed project is located in the City of Moreno Valley, California and noise regulations are addressed through the efforts of various federal, state and local government agencies. The agencies responsible for regulating noise are discussed below.

4.1 Federal Regulations

The adverse impact of noise was officially recognized by the federal government in the Noise Control Act of 1972, which serves three purposes:

- Publicize noise emission standards for interstate commerce
- Assist state and local abatement efforts
- Promote noise education and research

The Federal Office of Noise Abatement and Control (ONAC) originally was tasked with implementing the Noise Control Act. However, it was eventually eliminated leaving other federal agencies and committees to develop noise policies and programs. Some examples of these agencies are as follows: The Department of Transportation (DOT) assumed a significant role in noise control through its various agencies. The Federal Aviation Agency (FAA) is responsible for regulating noise from aircraft and airports. The Federal Highway Administration (FHWA) is responsible for regulating noise from the interstate highway system. The Occupational Safety and Health Administration (OSHA) is responsible for the prohibition of excessive noise exposure to workers. The Housing and Urban Development (HUD) is responsible for establishing noise regulations as it relates to exterior/interior noise levels for new HUD-assisted housing developments near high noise areas.

The federal government advocates that local jurisdictions use their land use regulatory authority to arrange new development in such a way that “noise sensitive” uses are either prohibited from being constructed adjacent to a highway or, or alternatively that the developments are planned and constructed in such a manner that potential noise impacts are minimized.

Since the federal government has preempted the setting of standards for noise levels that can be emitted by the transportation source, the City is restricted to regulating the noise generated by the transportation system through nuisance abatement ordinances and land use planning.

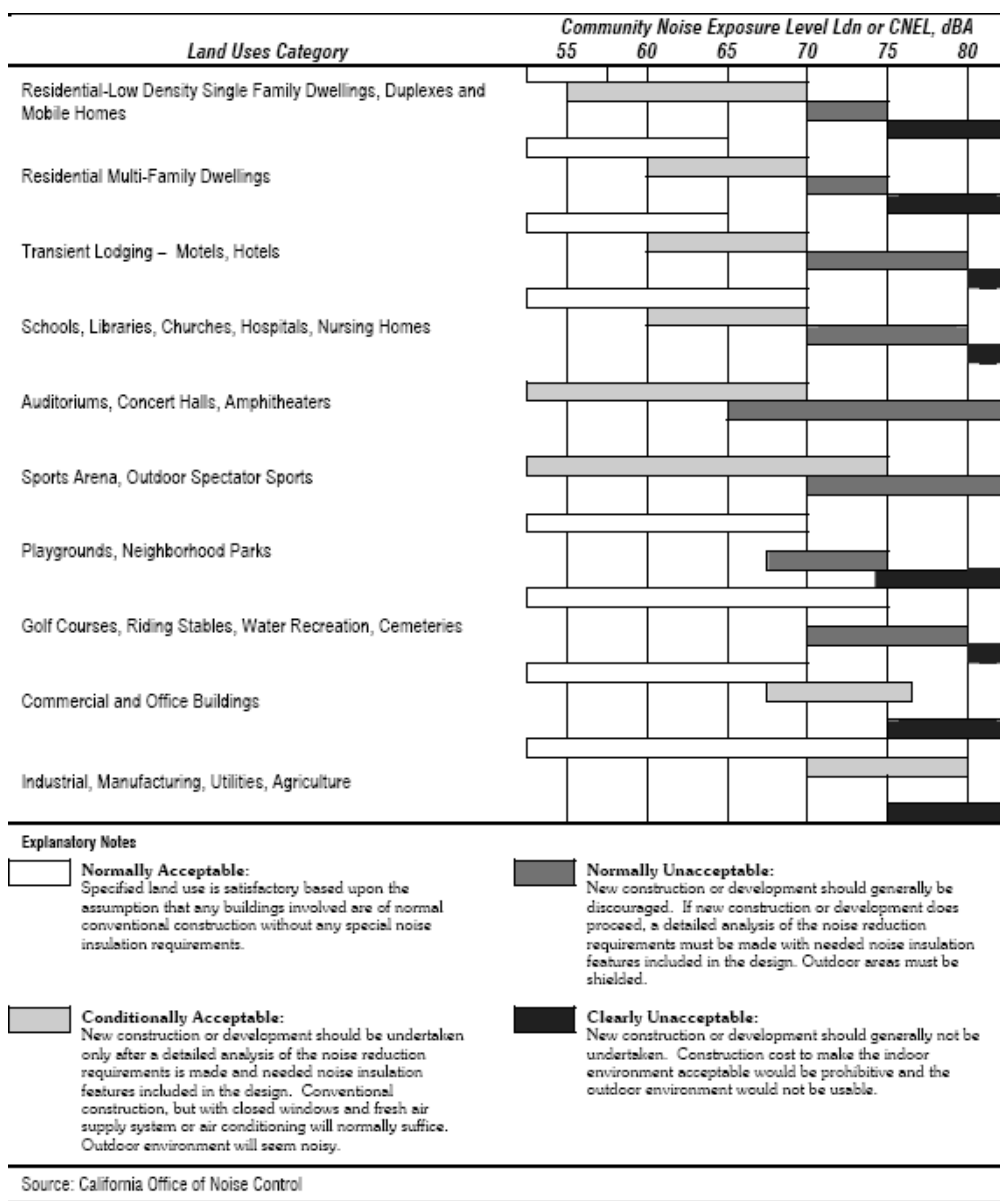
4.2 State Regulations

Established in 1973, the California Department of Health Services Office of Noise Control (ONC) was instrumental in developing regularity tools to control and abate noise for use by local agencies. One significant model is the “Land Use Compatibility for Community Noise Environments Matrix.” The matrix allows the local jurisdiction to clearly delineate compatibility of sensitive uses with various incremental levels of noise.

The State of California has established noise insulation standards as outlined in Title 24 and the Uniform Building Code (UBC) which in some cases requires acoustical analyses to outline exterior noise levels and to ensure interior noise levels do not exceed the interior threshold. The State mandates that the legislative body of each county and city adopt a noise element as part of its comprehensive general

plan. The local noise element must recognize the land use compatibility guidelines published by the State Department of Health Services. The guidelines rank noise land use compatibility in terms of normally acceptable, conditionally acceptable, normally unacceptable, and clearly unacceptable as illustrated in Exhibit D.

Exhibit D: Land Use Compatibility Guidelines



4.3 City of Moreno Valley Noise Regulations

The City of Moreno Valley outlines their noise regulations and standards within the Municipal Code and the City of Moreno Valley General Plan.

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

City of Moreno General Plan

Implementation of any of the three General Plan Alternatives may result in excessive noise generated by non-residential projects such as industrial and commercial uses, restaurants, and bars. These types of uses are allowed throughout the planning era. This is considered a potentially significant impact because stationary noise sources may subject some residents and noise sensitive land uses to substantial increases in ambient noise levels and ground bourn vibration that exceed established standards. Noise generated by new development is controlled through the normal design review process and General Plan Policy 6.5.1. When reviewing proposed non-residential projects, noise impacts to surrounding development will be considered. Acoustical analyses will be required for projects that could generate noise potentially affecting residential and other sensitive uses. Where impacts are identified, mitigation measures will be required. Implementation of Mitigation Measures N4, N7, and N9 will reduce this impact to a level less than significant.

Goals, Policies, and Implementation Measures

Policies, goals and implementation program measures from the General Plan that would mitigate potential impacts on noise include the following.

N1. The following noise control measures shall be applied to new single-family dwellings exposed to noise along major roadways:

- a. Install sound barriers (masonry walls or walls with earth berms) between residences and noise sources.
- b. Install double-paned or similar sound rated windows.
- c. Provide sound insulating exterior walls and roofing systems.
- d. Locate and/or design attic vents to minimize sound propagation into each home.
- e. Provide forced-air ventilation systems.
- f. Place dwellings as far as practical from the noise source. Install sound barriers (masonry walls or walls with earth berms) between residences and noise sources.

N2. Acoustical analyses shall be conducted for new residential development along State Route 60. Noise control measures shall be required to reduce the amount of noise to acceptable levels (limit interior noise levels with doors and windows closed to 45 CNEL)..

N3. Discourage residential uses where current or projected exterior noise due to aircraft over flights will exceed 65 CNEL (Policy 6.3.2)..

N4. New commercial and industrial activities (including the placement of mechanical equipment) shall be evaluated and designed to mitigate noise impacts on adjacent uses (Policy 6.5.1).

N5. Construction activities shall be operated in a manner that limits noise impacts on surrounding uses (Policy 6.5.2).

N6. The City shall reevaluate designated truck routes in terms of noise impact on existing land uses to determine if those established routes and the hours of their use should be adjusted to minimize exposure to truck noise (Program 6-3).

N7. The following uses shall require mitigation to reduce noise exposure where current or future exterior noise levels exceed 20 CNEL above the desired interior noise level (Policy 6.3.1):

- a. New single-family and multiple-family residential buildings shall be insulated to achieve an interior noise level of 45 CNEL or less. Such buildings shall include sound-insulating windows, walls, roofs and ventilation systems. Sound barriers shall also be installed (e.g. masonry walls or walls with berms) between single-family residences and major roadways.
- b. New libraries, hospitals and extended medical care facilities, places of worship and office uses shall be insulated to achieve interior noise levels of 50 CNEL or less.
- c. New schools shall be insulated to achieve interior noise levels of 45 CNEL or less.

N8. Where the future noise environment is likely to exceed 70 CNEL due to overflights from the joint-use airport at March, new buildings containing uses that are not addressed under Policy 6.3.1 shall require insulation to achieve interior noise levels recommended in the March Air Reserve Base Air Installation Compatible Use Zone Report (Policy 6.3.3).

N9. The City shall enforce the California Administrative Code, Title 24 noise insulation standards for new multi-family housing developments, motels and hotels (Policy 6.3.5).

N10. Building construction shall be prohibited between 8 p.m. and 6 a.m. during the week and 8 p.m. and 7 a.m. weekends and holidays (Policy 6.3.6).

City of Moreno Valley – Noise Ordinance

Section 11.80.030 from the noise ordinance outlines the City's exterior noise limits as it relates to stationary noise sources.

No person shall maintain, create, operate or cause to be operated on private property any source of sound in such a manner as to create any non-impulsive sound which exceeds the limits set forth for the source land use category (as defined in 11.80.020) in Table 1 when measured at a distance of two hundred (200) feet or more from the real property line of the source of the sound, if the sound occurs on privately owned property, or from the source of the sound, if the sound occurs on public right of way, public space or other publicly owned property. Any source of sound in violation of this subsection shall be deemed prima facie to be a noise disturbance.

Table 1: Allowable Exterior Noise Level¹
Sound Level Standards (dBA Leq)*

General Plan Land Use Designation	Maximum Decibel Level	
	7 a.m. - 10 p.m.	10 p.m. - 7 a.m.
Residential	60	55
Commercial	65	60

• **Sec. 11.80.030. – Specific Prohibitions.**

1. Motor Vehicles. No person shall operate or cause to be operated a public or private motor vehicle, or combination of vehicles towed by a motor vehicle, that creates a sound exceeding the sound level limits in Table 11.80.030-2 when the vehicle(s) are not otherwise subject to noise regulations provided for by the California Vehicle Code.
2. Radios, Televisions, Electronic Audio Equipment, Musical Instruments or Similar Devices from a Stationary Source. No person shall operate, play or permit the operation or playing of any radio, tape player, television, electronic audio equipment, musical instrument, sound amplifier or other mechanical or electronic sound making device that produces, reproduces or amplifies sound in such a manner as to create a noise disturbance. However, this subsection shall not apply to any use or activity exempted in subsection E of this section and any use or activity for which a special permit has been issued pursuant to Section 11.80.040.
3. Radios, Electronic Audio Equipment, or Similar Devices from a Mobile Source Such as a Motor Vehicle. Sound amplification or reproduction equipment on or in a motor vehicle is subject to regulation in accordance with the California Vehicle Code when upon the public right-of-way. When upon public space or publicly owned property other than the public right-of-way or upon private property open to the public, sound amplification or reproduction equipment shall not be operated in such a manner that it is plainly audible at a distance of fifty (50) feet in any direction from the vehicle.
4. Portable, Hand-Held Music or Sound Amplification or Reproduction Equipment. Such equipment shall not be operated on a public right-of-way, public space or other publicly owned property in such a manner as to be plainly audible at a distance of fifty (50) feet in any direction from the operator.
5. Loudspeakers and Public Address Systems.
 - a. Except as permitted by Section 11.80.040, no person shall operate, or permit the operation of, any loudspeaker, public address system or similar device, for any commercial purpose:

1. Which produces, reproduces or amplifies sound in such a manner as to create a noise disturbance; or
2. During nighttime hours on a public right-of-way, public space or other publicly owned property.
 - b. No person shall operate, or permit the operation of, any loudspeaker, public address system or similar device, for any noncommercial purpose, during nighttime hours in such a manner as to create a noise disturbance.
6. Animals. No person shall own, possess or harbor an animal or bird that howls, barks, meows, squawks, or makes other sounds that:
 - a. Create a noise disturbance;
 - b. Are of frequent or continued duration for ten (10) or more consecutive minutes and are plainly audible at a distance of fifty (50) feet from the real property line of the source of the sound; or
 - c. Are intermittent for a period of thirty (30) or more minutes and are plainly audible at a distance of fifty (50) feet from the real property line of the source of the sound.
7. Construction and Demolition. No person shall operate or cause the operation of any tools or equipment used in construction, drilling, repair, alteration or demolition work between the hours of eight p.m. and seven a.m. the following day such that the sound there from creates a noise disturbance, except for emergency work by public service utilities or for other work approved by the city manager or designee. This section shall not apply to the use of power tools as provided in subsection (D)(9) of this section.
8. Emergency Signaling Devices. No person shall intentionally sound or permit the sounding outdoors of any fire, burglar or civil defense alarm, siren or whistle, or similar stationary emergency signaling device, except for emergency purposes or for testing as follows:
 - a. Testing of a stationary emergency signaling device shall not occur between seven p.m. and seven a.m. the following day;
 - b. Testing of a stationary emergency signaling device shall use only the minimum cycle test time, in no case to exceed sixty (60) seconds;
 - c. Testing of a complete emergency signaling system, including the functioning of the signaling device and the personnel response to the signaling device, shall not occur more than once in each calendar month. Such testing shall only occur only on weekdays between seven a.m. and seven p.m. and shall be exempt from the time limit specified in subsection (D)(8)(2) of this section.

9. Power Tools. No person shall operate or permit the operation of any mechanically, electrically or gasoline motor-driven tool during nighttime hours so as to cause a noise disturbance across a residential real property boundary.

10. Pumps, Air Conditioners, Air-Handling Equipment and Other Continuously Operating Equipment. Notwithstanding the general prohibitions of subsection a of this section, no person shall operate or permit the operation of any pump, air conditioning, air-handling or other continuously operating motorized equipment in a state of disrepair or in a manner which otherwise creates a noise disturbance distinguishable from normal operating sounds.

Sec. 11.80.030(2). - Exemptions.

Exemptions. No violation shall exist if the only persons exposed to sound levels in excess of those listed in Tables 11.80.030-1 and 11.80.030-1A are exposed as a result of:

- a. Trespass;
- b. Invitation upon private property by the person causing or permitting the sound; or
- c. Employment by the person or a contractor of the person causing or permitting the sound.

5.0 Study Method and Procedure

The following section describes the noise modeling procedures and assumptions used for this assessment.

5.1 Noise Measurement Procedure and Criteria

Noise measurements are taken to determine the existing noise levels. A noise receiver or receptor is any location in the noise analysis in which noise might produce an impact. The following criteria are used to select measurement locations and receptors:

- Locations expected to receive the highest noise impacts, such as the first row of houses
- Locations that are acoustically representative and equivalent of the area of concern
- Human land usage
- Sites clear of major obstruction and contamination

MD conducted the sound level measurements in accordance to Federal Highway Transportation (FHWA) and Caltrans (TeNS) technical noise specifications. All measurement equipment meets American National Standards Institute (ANSI) specifications for sound level meters (S1.4-1983 identified in Chapter 19.68.020.AA). The following gives a brief description of the Caltrans Technical Noise Supplement procedures for sound level measurements:

- Microphones for sound level meters were placed 5-feet above the ground for all measurements
- Sound level meters were calibrated (Larson Davis CAL 200) before and after each measurement
- Following the calibration of equipment, a windscreen was placed over the microphone
- Frequency weighting was set on "A" and slow response
- Results of the long-term noise measurements were recorded on field data sheets
- During any short-term noise measurements, any noise contaminations such as barking dogs, local traffic, lawn mowers, or aircraft fly-overs were noted
- Temperature and sky conditions were observed and documented

5.2 Noise Measurement Locations

Noise monitoring locations were selected based on the nearest sensitive receptors relative to the proposed onsite noise sources. One (1) long-term 24-hour noise measurement was conducted at or near the project site and are illustrated in Exhibit E. Appendix A includes photos, field sheet, and measured noise data.

5.3 Stationary Noise Modeling

SoundPLAN (SP) acoustical modeling software was utilized to model future worst-case stationary noise impacts to the adjacent land uses. SP is capable of evaluating multiple stationary noise source impacts at various receiver locations. SP's software utilizes algorithms (based on the inverse square law and reference equipment noise level data) to calculate noise level projections. The software allows the user to input specific noise sources, spectral content, sound barriers, building placement, topography, and sensitive receptor locations.

The future worst-case noise level projections were modeled using referenced sound level data for the various stationary on-site sources (parking spaces, and gas station canopy). The model assumes that the gas station canopy has approximately eight (8) filling stations, and approximately 59 parking spaces.

The gas canopy was modeled as an area noise source were reference levels of 70 dBA at 3 feet.

The cars idling and coming and going in the parking spots were modeled at 2.5 cars per hour.

The SP model assumes that all noise sources are operating simultaneously (worst-case scenario), when in actuality the noise will be intermittent and lower in noise level.

Finally, the model is able to evaluate the noise attenuating effects of any existing or proposed property line walls (approximately 6-foot tall existing wood fence on the east property line). Input and output calculations are provided in Appendix B.

5.4 FHWA Traffic Noise Prediction Model

Traffic noise from vehicular traffic was projected using a computer program that replicates the FHWA Traffic Noise Prediction Model (FHWA-RD-77-108). The FHWA model arrives at the predicted noise level through a series of adjustments to the Reference Energy Mean Emission Level (REMEL). Roadway volumes and percentages correspond to the project's traffic impact study as prepared by TJW Engineering (HDI-18-002 Van Buren Blvd Commercial Development Center Traffic Impact Assessment – Sept 2018) and roadway classification. The referenced traffic data was applied to the model and is in Appendix B. The following outlines the key adjustments made to the REMEL for the roadway inputs:

- Roadway classification – (e.g. freeway, major arterial, arterial, secondary, collector, etc),
- Roadway Active Width – (distance between the center of the outer most travel lanes on each side of the roadway)
- Average Daily Traffic Volumes (ADT), Travel Speeds, Percentages of automobiles, medium trucks and heavy trucks
- Roadway grade and angle of view
- Site Conditions (e.g. soft vs. hard)
- Percentage of total ADT which flows each hour through-out a 24-hour period

Table 2 indicates the roadway parameters and vehicle distribution utilized for this study.

Table 2: Roadway Parameters and Vehicle Distribution

Roadway	Segment	Existing ADT	Existing Plus Project ADT	Speed (MPH)	Site Conditions
Allessandro Blvd	Wilmot to Redlands Blvd	4,439	5,262	40	Soft
Vehicle Distribution (Truck Mix)²					
Motor-Vehicle Type		Daytime % (7AM to 7 PM)	Evening % (7 PM to 10 PM)	Night % (10 PM to 7 AM)	Total % of Traffic Flow
Automobiles		75.5	14.0	10.5	97.42
Medium Trucks		48.9	2.2	48.9	1.84
Heavy Trucks		47.3	5.4	47.3	0.74
Notes:					
¹ Per TIA (Redlands Alessandro Commercial Plaza Traffic Impact Analysis, City of Moreno Valley, CA – TJW Engineering, Inc., 09/30/2019)					
² Vehicle distribution data is based on Riverside County Mix data for collectors and secondary roadways.					

The following outlines key adjustments to the REMEL for project site parameter inputs:

- Vertical and horizontal distances (Sensitive receptor distance from noise source)
- Noise barrier vertical and horizontal distances (Noise barrier distance from sound source and receptor).
- Traffic noise source spectra
- Topography

MD utilized the existing 24-hour baseline noise data to calibrate the FHWA traffic noise model within 1 dB of the actual measured level. The model incorporates the parameters outlined in Table 2 and is utilized to describe the change in traffic noise level as a result of said project. Modeling inputs and outputs are provided in Appendix D

5.5 FHWA Roadway Construction Noise Model

The construction noise analysis utilizes the Federal Highway Administration (FHWA) Roadway Construction Noise Model (RNCM), together with several key construction parameters. Key inputs include distance to the sensitive receiver, equipment usage, % usage factor, and baseline parameters for the project site.

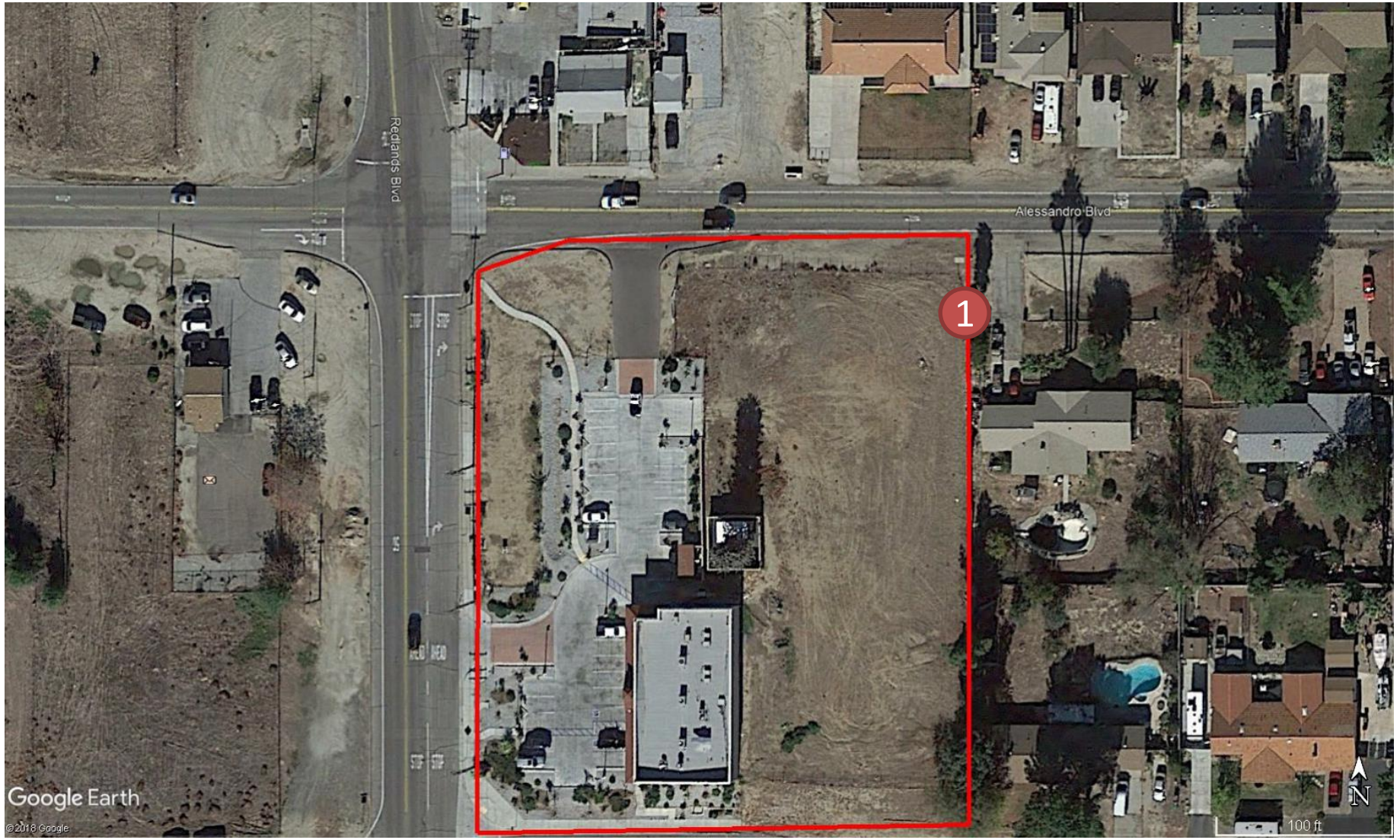
The project was analyzed based on the different construction phases. Construction noise is expected to be loudest during the grading, concrete and building phases of construction. The construction noise calculation output worksheet is located in Appendix E. The following assumptions relevant to short-term construction noise impacts were used:

- It is estimated that construction will occur over a 12 to 18-month time period. Construction noise is expected to be the loudest during the grading, concrete, and building phases.

Exhibit I

Measurement Location

1 = Long-term
Monitoring Location



Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET

6.0 Existing Noise Environment

A twenty-four hour (24) ambient noise measurement was conducted at the project site. Noise measurements were taken to determine the existing ambient noise levels. Noise data indicates that traffic along Alessandro Blvd and Redlands Blvd are the primary sources of noise impacting the site and the surrounding area. The ambient data confirms that the existing noise levels do not exceed the City's noise ordinance for residential uses (60 dBA Daytime and 55 dBA Nighttime). Therefore, this assessment will utilize the ambient noise data as a basis and compare levels to said data.

6.1 Long-Term Noise Measurement Results

The results of the long-term noise data are presented in Table 3.

Table 3: Long-Term Noise Measurement Data¹

Date	Time	1-Hour dB(A)							
		LEQ	L _{MAX}	L _{MIN}	L ₂	L ₈	L ₂₅	L ₅₀	L ₉₀
9/25/2019	8AM-9AM	58.6	75.5	40.6	67.2	62.7	58.9	53.7	46.4
9/25/2019	9AM-10AM	55.8	73.3	39.6	64.3	60.7	55.8	48.6	43.4
9/25/2019	10AM-11AM	55.8	74.2	38.7	64.8	60.9	55.1	47.6	43.0
9/25/2019	11AM-12PM	56.4	78.2	38.8	64.7	61.0	55.9	49.6	43.0
9/25/2019	12PM-1PM	57.3	76.9	38.8	66.8	61.0	56.1	49.6	43.6
9/25/2019	1PM-2PM	56.8	77.4	39.0	65.7	61.0	56.6	50.8	45.1
9/25/2019	2PM-3PM	57.3	74.3	41.5	65.5	61.8	57.7	52.1	46.4
9/25/2019	3PM-4PM	58.7	77.8	43.0	65.7	62.5	58.7	53.7	49.1
9/25/2019	4PM-5PM	62.3	90.8	44.7	67.6	63.5	60.1	55.4	49.7
9/25/2019	5PM-6PM	59.4	76.9	44.8	67.5	63.4	60.0	55.3	49.4
9/25/2019	6PM-7PM	59.3	85.6	43.8	65.3	61.8	57.7	52.3	48.0
9/25/2019	7PM-8PM	54.9	69.1	43.3	63.2	60.2	54.9	49.5	45.6
9/25/2019	8PM-9PM	53.1	73.4	41.2	62.8	58.0	50.7	46.6	43.0
9/25/2019	9PM-10PM	56.6	84.0	41.2	63.4	59.3	52.5	46.4	43.0
9/25/2019	10PM-11PM	53.6	77.5	40.7	62.9	57.2	48.2	44.7	42.1
9/25/2019	11PM-12AM	50.6	72.0	33.6	61.0	53.4	45.4	43.3	41.6
9/26/2019	12AM-1AM	48.6	75.5	31.6	59.5	46.7	38.8	36.7	33.2
9/26/2019	1AM-2AM	46.2	66.4	33.4	58.0	44.9	41.1	39.3	36.2
9/26/2019	2AM-3AM	44.4	66.7	31.5	55.9	43.5	38.9	36.0	32.8
9/26/2019	3AM-4AM	46.3	69.3	32.0	58.0	45.3	40.1	37.1	33.5
9/26/2019	4AM-5AM	50.7	71.1	33.3	61.2	54.3	45.3	41.7	37.0
9/26/2019	5AM-6AM	58.5	83.8	36.5	65.4	60.7	54.1	48.6	42.3
9/26/2019	6AM-7AM	56.3	71.6	39.7	64.5	61.5	56.9	49.5	43.7
9/26/2019	7AM-8AM	59.6	83.5	43.1	65.6	62.6	59.7	55.4	49.2
CNEL		60.9							
Notes:									
1. Long-term noise monitoring location (LT1) is illustrated in Exhibit E.									
2. Quietest daytime hour is highlighted in orange.									
3. Quietest Nighttime hour is highlighted in blue.									

Noise data indicates the ambient noise level ranges between 62.3 dBA Leq to 44.4 dBA Leq over the entire 24-hour monitoring period. The measured CNEL is 60.9 dBA. Additional field notes and photographs are provided in Appendix A.

For this evaluation, MD has utilized the quietest hourly level (during daytime and nighttime) and has compared the project's projected noise levels to the quietest hourly ambient. The quietest (lowest) daytime hourly level occurred from 8PM to 9PM (53.1 dBA, Leq(h)) and the quietest (lowest) nighttime hourly level occurred from 2AM to 3AM (44.4 dBA, Leg (h)).

7.0 Future Noise Environment Impacts and Mitigation

This assessment analyzes future noise impacts as a result of the project. The analysis details the estimated exterior noise levels. Stationary noise impacts are analyzed from the on-site noise sources such as cars coming and going.

7.1 Future Exterior Noise

The following outlines the exterior noise levels associated with the proposed project.

7.1.1 Noise Impacts to Off-Site Receptors Due to Stationary Sources

Sensitive receptors that may be affected by project operational noise include existing residences to the north, south, and east. The worst-case stationary noise was modeled using SoundPLAN acoustical modeling software. Worst-case assumes the all project activities are always operational when in reality the noise will be intermittent and cycle on/off depending on customer usage. The project assumes that the gas canopy will be operational twenty four (24) hours a day.

A total of seven (7) receptors were modeled to evaluate the proposed project's operational impact. A receptor is denoted by a yellow dot. All yellow dots represent either a property line or a sensitive receptor such as an outdoor sensitive area (courtyard, patio, backyard, etc).

This study compares the Project's operational noise levels to two (2) different noise assessment scenarios: 1) Project Only operational noise level projections, 2) Project plus ambient noise level projections.

Project Operational Noise Levels

Exhibit F and H shows the "project only" daytime and nighttime operational noise levels at the property lines and/or sensitive receptor area. Exhibit G and I shows the noise contours (daytime and nighttime) at the project site and illustrates how the noise will propagate at the site. Daytime operational noise levels at the adjacent uses are anticipated to range between 31.7 dBA to 50.9 dBA Leq (depending on the location) and nighttime operational noise levels are anticipated to range between __ to __ dBA Leq at receptors R1 through R7.

The "project only" noise projections to the adjacent uses are below the City's 60 dBA daytime residential limit, and 55 dBA nighttime residential limit as outlined within the City's noise ordinance (see Section 4.3).

Project Plus Ambient Operational Noise Levels

Table 4 demonstrates the project plus the ambient (quietest measured hourly average level) noise levels. Project plus ambient noise level projections are anticipated to range between 53.1 to 55.1 dBA Leq at residential receptors (R1 – R7). As previously discussed, the project has been compared to the quietest hourly average ambient noise level for comparative purposes.

Table 4: Worst-case Predicted Daytime (7AM – 10PM) Operational Noise Levels (dBA)¹

Receptor ¹	Floor	Existing Ambient Noise Level (dBA, Leq) ²	Project Noise Level (dBA, Leq) ³	Total Combined Noise Level (dBA, Leq)	Daytime (7AM - 10PM) Stationary Noise Limit (dBA, Leq)	Change in Noise Level as Result of Project
1	1	53.1	31.7	53.1	60.0	0.0
2	1		50.9	55.1		2.0
3	1		47.6	54.2		1.1
4	1		44.0	53.6		0.5
5	1		40.6	53.3		0.2
6	1		39.4	53.3		0.2
7	1		39.2	53.3		0.2

Notes:
¹ Receptors 1 thru 7 represent residential uses or potential residential uses.
³ See Exhibit G for the operational noise level projections at said receptors.

As shown in Table 4, the project will increase the worst-case noise level by approximately 0.0 to 2.0 dBA Leq at residential receptors (R1 – R7). It takes a change of 3 dBA to hear a noticeable difference. The increase in noise level is below the typical noticeable difference in change of noise levels.

Table 5 demonstrates the project plus ambient average noise level during nighttime conditions. The project plus ambient noise level projections are anticipated to range between 46.0 to 46.1 dBA at the receptors R1 through R4.

Table 5: Worst-case Predicted Nighttime (10PM – 7AM) Operational Noise Levels (dBA)

Receptor ¹	Floor	Existing Ambient Noise Level (dBA, Leq) ²	Project Noise Level (dBA, Leq) ³	Total Combined Noise Level (dBA, Leq)	Nighttime (10PM - 7AM) Stationary Noise Limit (dBA, Leq) ⁴	Change in Noise Level as Result of Project
1	1	44.4	24.8	44.4	55	0.0
2	1		42.4	46.5		2.1
3	1		40.7	45.9		1.5
4	1		37.0	45.1		0.7
5	1		33.4	44.7		0.3
6	1		32.3	44.7		0.3
7	1		32.2	44.7		0.3

Notes:
¹ Receptors 1 thru 7 represent residential uses or potential residential uses.
³ See Exhibit G for the operational noise level projections at said receptors.

As shown in Table 5, the project will increase the worst-case noise level by approximately 0.0 to 2.1 dBA Leq at residential receptors (R1 – R7). It takes a change of 3 dBA to hear a noticeable difference. The increase in noise level is below the typical noticeable difference in change of noise levels.

Table 6 provides the characteristics associated with changes in noise levels.

Table 6: Change in Noise Level Characteristics¹

Changes in Intensity Level, dBA	Changes in Apparent Loudness
1	Not perceptible
3	Just perceptible
5	Clearly noticeable
10	Twice (or half) as loud

https://www.fhwa.dot.gov/environMent/noise/regulations_and_guidance/polguide/polguide02.cfm

The change in noise level at the residences would fall within the “Not Perceptible” acoustic characteristic.

7.1.2 Noise Impacts to On/Off-Site Receptors Due to Project Generated Traffic

A worst-case project generated traffic noise level was modeled utilizing the FHWA Traffic Noise Prediction Model - FHWA-RD-77-108. Traffic noise levels were calculated 50 feet from the centerline of the analyzed roadway. The modeling is theoretical and does not take into account any existing barriers, structures, and/or topographical features that may further reduce noise levels. Therefore, the levels are shown for comparative purposes only to show the difference in with and without project conditions. In addition, the noise contours for 60, 65 and 70 dBA CNEL were calculated. The potential off-site noise impacts caused by an increase of traffic from operation of the proposed project on the nearby roadways were calculated for the following scenarios:

Existing Year (without Project): This scenario refers to existing year traffic noise conditions.

Existing Year (Plus Project): This scenario refers to existing year + project traffic noise conditions.

Table 7 compares the without and with project scenario and shows the change in traffic noise levels as a result of the proposed project. It takes a change of 3 dB or more to hear a perceptible difference. As demonstrated in Table 7, the project is anticipated to change the noise 0.7 dBA CNEL. Although there is a nominal increase along these two roadways, the proposed increase would still be below the 65 dBA CNEL residential standard at any off-site receptors. As shown in Table 7, the Existing Plus Project 65 dBA contour would extend an additional 5 from the centerline for Allesandro Boulevard.

Although there is an increase in traffic noise levels the impact is considered less than significant as the noise levels at or near any existing proposed sensitive receptor would be 65 dBA CNEL or less and the change in noise level is less than 3 dBA. No further mitigation is required.

Table 6: Existing Scenario - Noise Levels Along Roadways (dBA CNEL)

Existing Without Project Exterior Noise Levels

Roadway	Segment	CNEL at 50 Ft (dBA)	Distance to Contour (Ft)			
			70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	55 dBA CNEL
Allesandro Blvd	Wilmot St to Redlands Blvd	63.4	18	39	84	181

Existing With Project Exterior Noise Levels

Roadway	Segment	CNEL at 50 Ft (dBA)	Distance to Contour (Ft)			
			70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	55 dBA CNEL
Allesandro Blvd	Wilmot St to Redlands Blvd	64.1	20	44	94	203

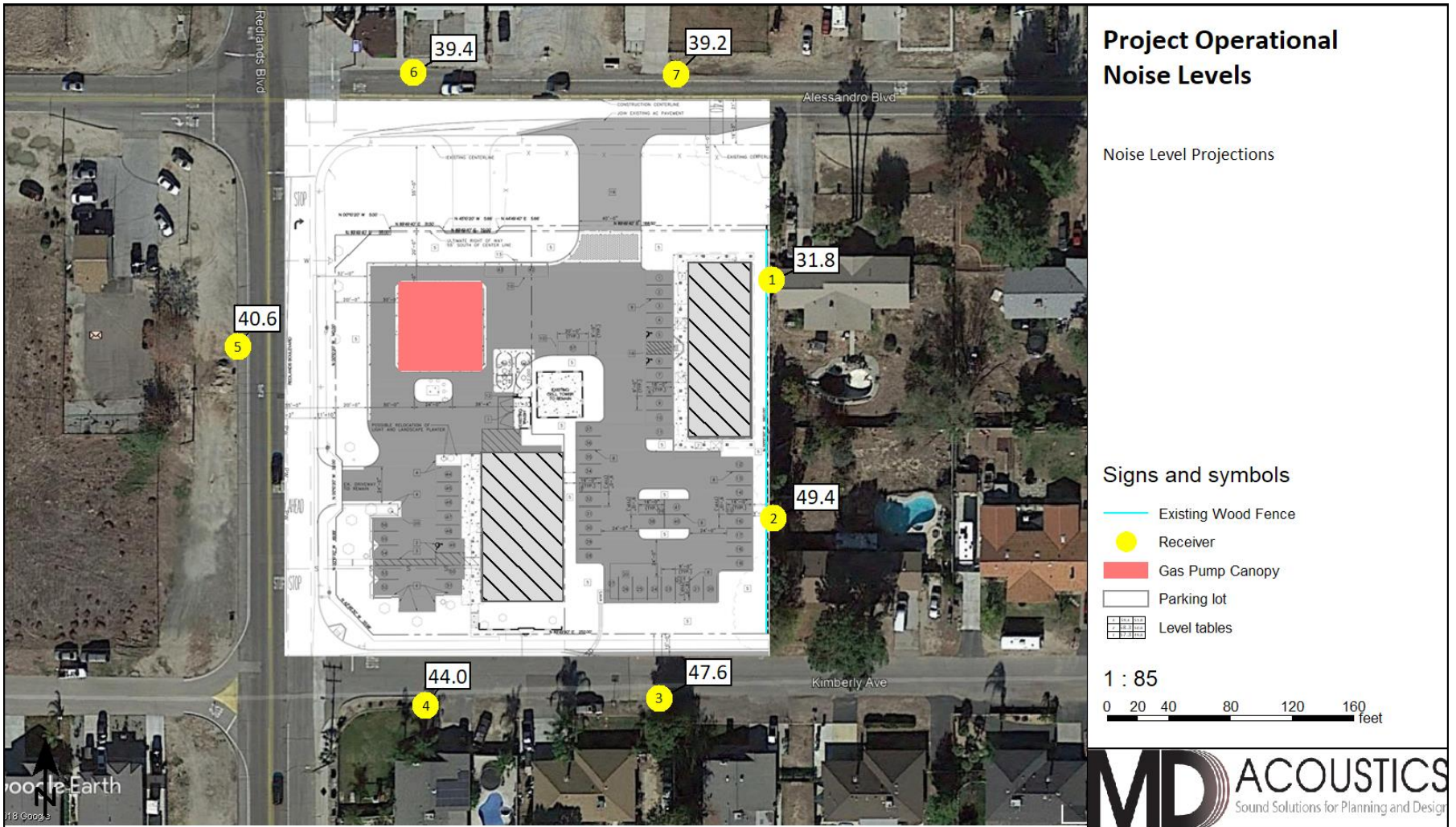
Change in Existing Noise Levels as a Result of Project

Roadway ¹	Segment	CNEL at 50 Feet dBA ²			
		Existing Without Project	Existing With Project	Change in Noise Level	Potential Significant Impact
Allesandro Blvd	Wilmot St to Redlands Blvd	63.4	64.1	0.7	No

Notes:
¹ Exterior noise levels calculated at 5 feet above ground level.
² Noise levels calculated from centerline of subject roadway.

Exhibit I

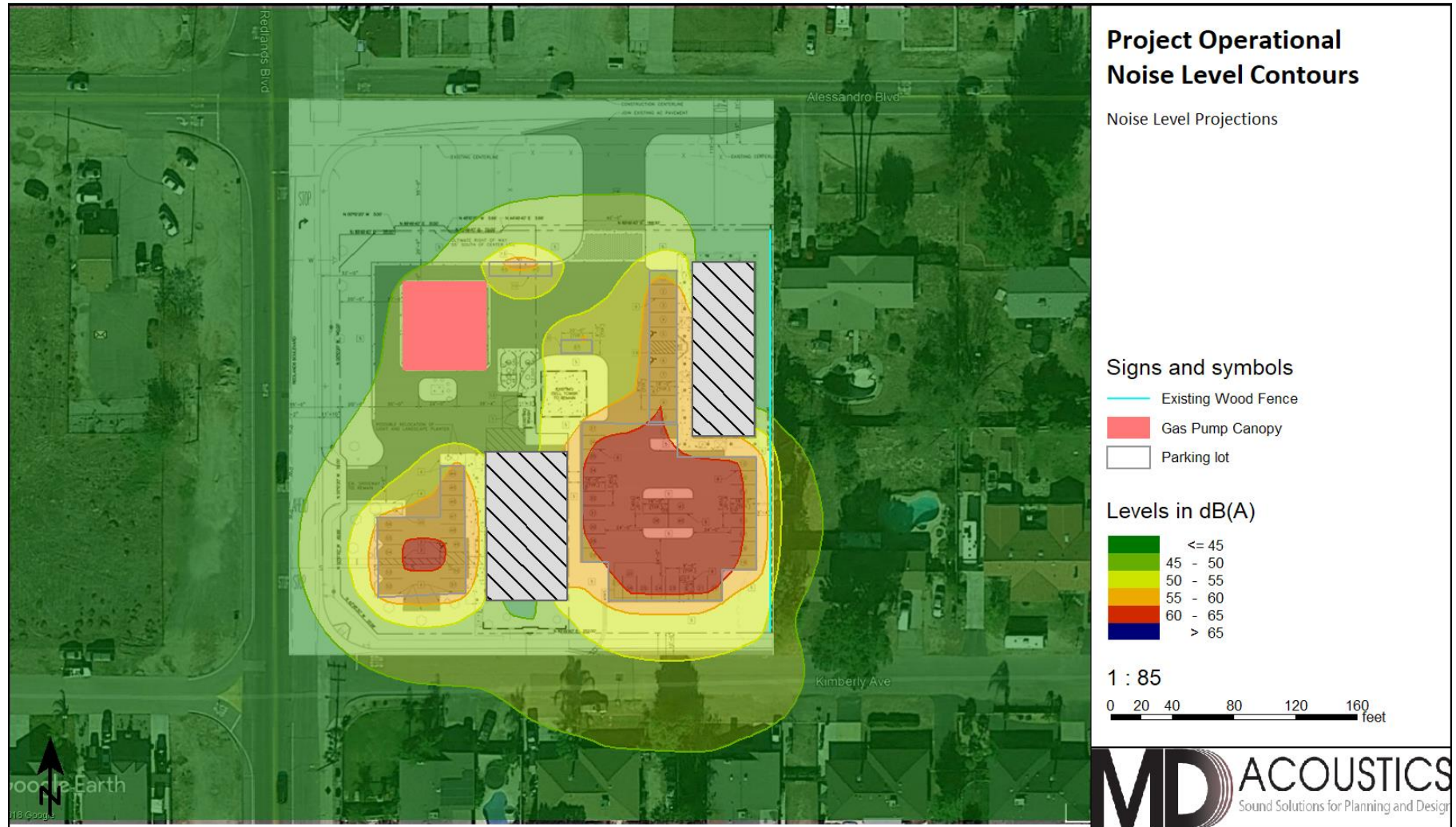
Worst-case Daytime Operational Noise Level



Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET

Exhibit C

Worst-case Operational Daytime Noise Level Contour



Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET

Exhibit I

Worst-case Nighttime Operational Noise Level

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET

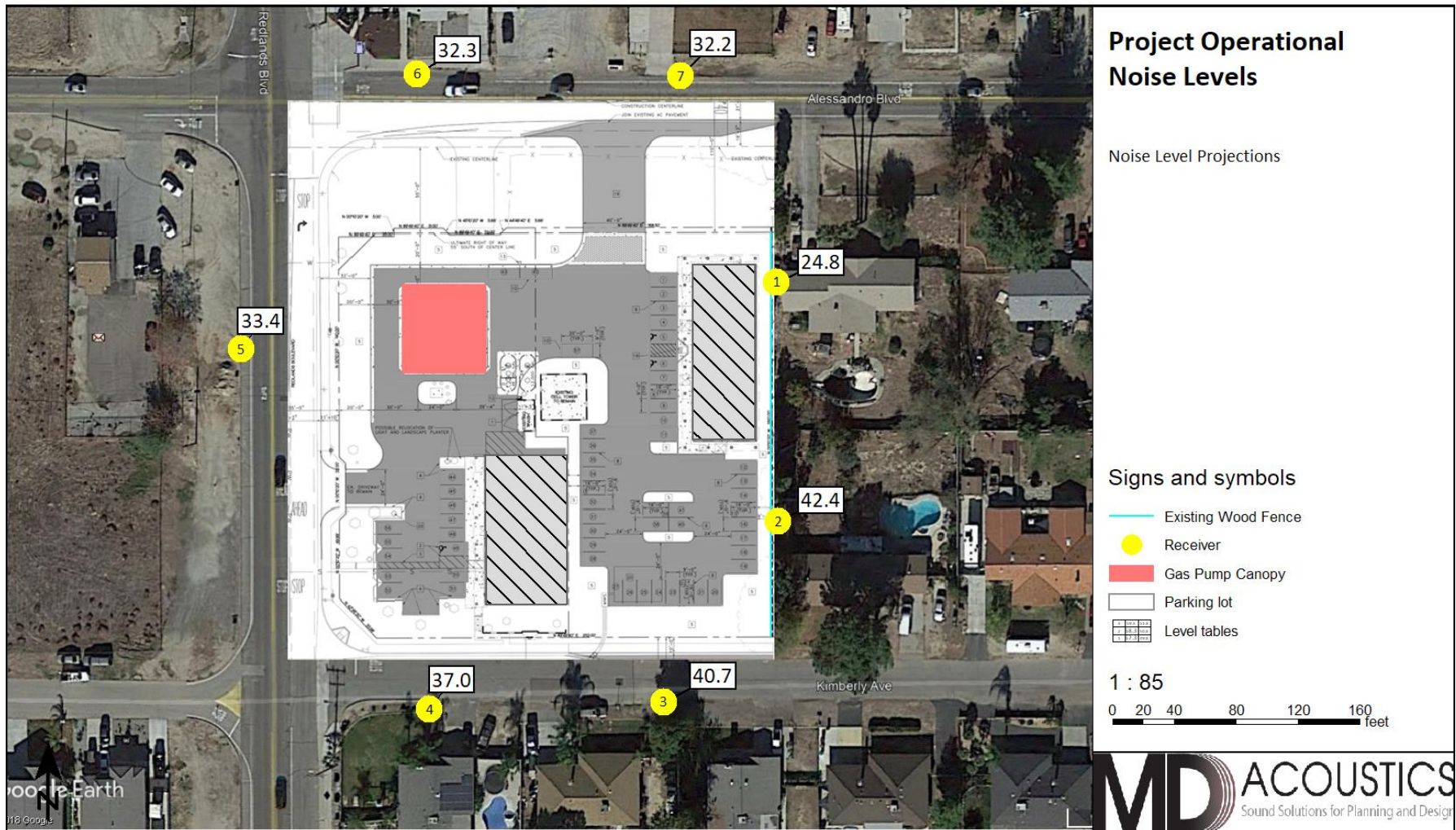


Exhibit Worst-case Nighttime Operational Noise Contour

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET



8.0 Construction Noise Impact

The degree of construction noise may vary for different areas of the project site and also vary depending on the construction activities. Noise levels associated with the construction will vary with the different phases of construction.

8.1 Construction Noise

The Environmental Protection Agency (EPA) has compiled data regarding the noise generated characteristics of typical construction activities. The data is presented in Table 8.

Table 8: Typical Construction Equipment Noise Levels¹

Type	Lmax (dBA) at 50 Feet
Backhoe	80
Truck	88
Concrete Mixer	85
Pneumatic Tool	85
Pump	76
Saw, Electric	76
Air Compressor	81
Generator	81
Paver	89
Roller	74
Notes: ¹ Referenced Noise Levels from FTA noise and vibration manual.	

Construction noise is considered a short-term impact and would be considered significant if construction activities are taken outside the allowable times as described in the City's General Plan Chapter 5.4 Noise N10. Construction is anticipated to occur during the permissible hours according to the City's General Plan. Construction noise will have a temporary or periodic increase in the ambient noise level above the existing within the project vicinity. Furthermore, noise reduction measures are provided to further reduce construction noise. The impact is considered less than significant however construction noise level projections are provided.

Typical operating cycles for these types of construction equipment may involve one or two minutes of full power operation followed by three to four minutes at lower power settings. Noise levels will be loudest during grading phase. A likely worst-case construction noise scenario during grading assumes the use of 1-grader, 1-dozer, 1-excavators, 1-scraper and 1-backhoes operating at 15 feet from the nearest sensitive receptor.

Assuming a usage factor of 40 percent for each piece of equipment, unmitigated noise levels at 15 feet have the potential to reach 83 dBA L_{eq} at the nearest sensitive receptors during building construction. This takes into account a 12-foot temporary sound barrier being placed on the eastern property line during construction.

8.2 Construction Vibration

Construction activities can produce vibration that may be felt by adjacent land uses. The construction of the proposed project would not require the use of equipment such as pile drivers, which are known to generate substantial construction vibration levels. The primary vibration source during construction may be from a bulldozer. A large bulldozer has a vibration impact of 0.089 inches per second peak particle velocity (PPV) at 25 feet which is perceptible but below any risk to architectural damage.

The fundamental equation used to calculate vibration propagation through average soil conditions and distance is as follows:

$$PPV_{\text{equipment}} = PPV_{\text{ref}} (100/D_{\text{rec}})^n$$

Where: PPV_{ref} = reference PPV at 100ft.

D_{rec} = distance from equipment to receiver in ft.

$n = 1.1$ (the value related to the attenuation rate through ground)

The thresholds from the Caltrans Transportation and Construction Induced Vibration Guidance Manual in Table 9 (below) provides general thresholds and guidelines as to the vibration damage potential from vibratory impacts.

Table 9: Guideline Vibration Damage Potential Threshold Criteria

Structure and Condition	Maximum PPV (in/sec)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5

Source: Table 19, Transportation and Construction Vibration Guidance Manual, Caltrans, Sept. 2013.
 Note: Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

Table 9 gives approximate vibration levels for particular construction activities. This data provides a reasonable estimate for a wide range of soil conditions.

Table 10: Vibration Source Levels for Construction Equipment¹

Equipment	Peak Particle Velocity (inches/second) at 25 feet	Approximate Vibration Level LV (dVB) at 25 feet
Pile driver (impact)	1.518 (upper range)	112
	0.644 (typical)	104
Pile driver (sonic)	0.734 upper range	105
	0.170 typical	93
Clam shovel drop (slurry wall)	0.202	94
Hydromill (slurry wall)	0.008 in soil	66
	0.017 in rock	75
Vibratory Roller	0.21	94
Hoe Ram	0.089	87
Large bulldozer	0.089	87
Caisson drill	0.089	87
Loaded trucks	0.076	86
Jackhammer	0.035	79
Small bulldozer	0.003	58

¹ Source: Transit Noise and Vibration Impact Assessment, Federal Transit Administration, May 2006.

At a distance of 15 feet (distance residential structure from the property line), a large bulldozer would yield a worst-case 0.156 PPV (in/sec) which may be perceptible for short periods of time during grading along the eastern property line of the project site, but is below any threshold of damage. The impact is less than significant and no mitigation is required.

8.3 Construction Noise Reduction Measures

Construction operations must follow the City's General Plan and the Noise Ordinance, which states that construction, repair or excavation work performed must occur within the permissible hours. To further ensure that construction activities do not disrupt the adjacent land uses, the following measures should be taken:

1. Construction should occur during the permissible hours as defined in N10 Policy
2. During construction, the contractor shall ensure all construction equipment is equipped with appropriate noise attenuating devices.
3. The contractor should locate equipment staging areas that will create the greatest distance between construction-related noise/vibration sources and sensitive receptors nearest the project site during all project construction.
4. Idling equipment should be turned off when not in use.
5. Equipment shall be maintained so that vehicles and their loads are secured from rattling and banging.

6. MD also recommends the implementation of a 12 ft temporary noise barrier on the east property line

9.0 References

State of California General Plan Guidelines: 1998. Governor's Office of Planning and Research

City of Moreno Valley: General Plan. Noise. Chapter 5.

City of Moreno Valley : Municipal Code Chapter 11.80. Noise Regulation

TJW Engineering, – Redlands Alessandro Commercial Plaza Traffic Impact Analysis, August 2019

Appendix A:
Photographs and Field Measurement Data

24-Hour Continuous Noise Measurement Datasheet

Project:	Farm Market Development	Site Observations:	Clear sky to cloudy, measurement was performed at the eastern property line wall. Ambient noise consisted of traffic along Alessandro Blvd and Redlands blvd and existing Farm Market store.
Site Address/Location:	14058 Redlands Blvd, Moreno Valley, CA		
Date:	9/25/2019 to 9/26/2019		
Field Tech/Engineer:	Jason Schuyler		

General Location: _____
Sound Meter: LD 831 SN: 3168
Settings: A-weighted, slow, 1-sec, 1-hour interval, 24-hour duration
Meteorological Con.: _____
Site ID: LT-1

Site Topo: Flat
Ground Type: Soft site, w/ street surface hard

Noise Source(s) w/ Distance:

- C/L of Alessandro is 62ft from meter
- C/L of Redlands is 318ft from meter
- Farm Market Aprx 204ft from meter

Figure 1: LT-1 Monitoring Location

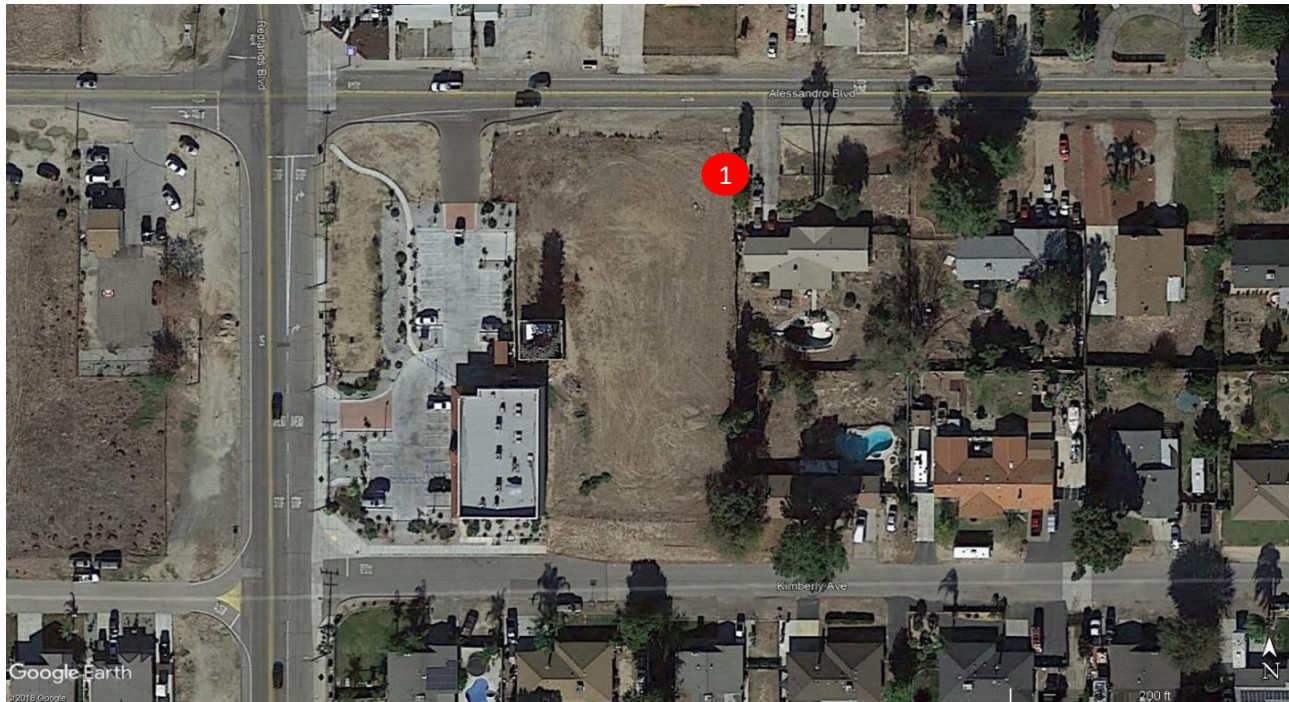


Figure 2: LT-1 Photo



Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET

24-Hour Continuous Noise Measurement Datasheet - Cont.

Project: Farm Market Development
Site Address/Location: 14058 Redlands Blvd, Moreno Valley, CA
Site ID: LT-1

Day: 1 of 1

Date	Start	Stop	Leq	Lmax	Lmin	L2	L8	L25	L50	L90
9/25/2019	8:00 AM	9:00 AM	58.6	75.5	40.6	67.2	62.7	58.9	53.7	46.4
9/25/2019	9:00 AM	10:00 AM	55.8	73.3	39.6	64.3	60.7	55.8	48.6	43.4
9/25/2019	10:00 AM	11:00 AM	55.8	74.2	38.7	64.8	60.9	55.1	47.6	43.0
9/25/2019	11:00 AM	12:00 PM	56.4	78.2	38.8	64.7	61.0	55.9	49.6	43.0
9/25/2019	12:00 PM	1:00 PM	57.3	76.9	38.8	66.8	61.0	56.1	49.6	43.6
9/25/2019	1:00 PM	2:00 PM	56.8	77.4	39.0	65.7	61.0	56.6	50.8	45.1
9/25/2019	2:00 PM	3:00 PM	57.3	74.3	41.5	65.5	61.8	57.7	52.1	46.4
9/25/2019	3:00 PM	4:00 PM	58.7	77.8	43.0	65.7	62.5	58.7	53.7	49.1
9/25/2019	4:00 PM	5:00 PM	62.3	90.8	44.7	67.6	63.5	60.1	55.4	49.7
9/25/2019	5:00 PM	6:00 PM	59.4	76.9	44.8	67.5	63.4	60.0	55.3	49.4
9/25/2019	6:00 PM	7:00 PM	59.3	85.6	43.8	65.3	61.8	57.7	52.3	48.0
9/25/2019	7:00 PM	8:00 PM	54.9	69.1	43.3	63.2	60.2	54.9	49.5	45.6
9/25/2019	8:00 PM	9:00 PM	53.1	73.4	41.2	62.8	58.0	50.7	46.6	43.0
9/25/2019	9:00 PM	10:00 PM	56.6	84.0	41.2	63.4	59.3	52.5	46.4	43.0
9/25/2019	10:00 PM	11:00 PM	53.6	77.5	40.7	62.9	57.2	48.2	44.7	42.1
9/25/2019	11:00 PM	12:00 AM	50.6	72.0	33.6	61.0	53.4	45.4	43.3	41.6
9/26/2019	12:00 AM	1:00 AM	48.6	75.5	31.6	59.5	46.7	38.8	36.7	33.2
9/26/2019	1:00 AM	2:00 AM	46.2	66.4	33.4	58.0	44.9	41.1	39.3	36.2
9/26/2019	2:00 AM	3:00 AM	44.4	66.7	31.5	55.9	43.5	38.9	36.0	32.8
9/26/2019	3:00 AM	4:00 AM	46.3	69.3	32.0	58.0	45.3	40.1	37.1	33.5
9/26/2019	4:00 AM	5:00 AM	50.7	71.1	33.3	61.2	54.3	45.3	41.7	37.0
9/26/2019	5:00 AM	6:00 AM	58.5	83.8	36.5	65.4	60.7	54.1	48.6	42.3
9/26/2019	6:00 AM	7:00 AM	56.3	71.6	39.7	64.5	61.5	56.9	49.5	43.7
9/26/2019	7:00 AM	8:00 PM	59.6	83.5	43.1	65.6	62.6	59.7	55.4	49.2

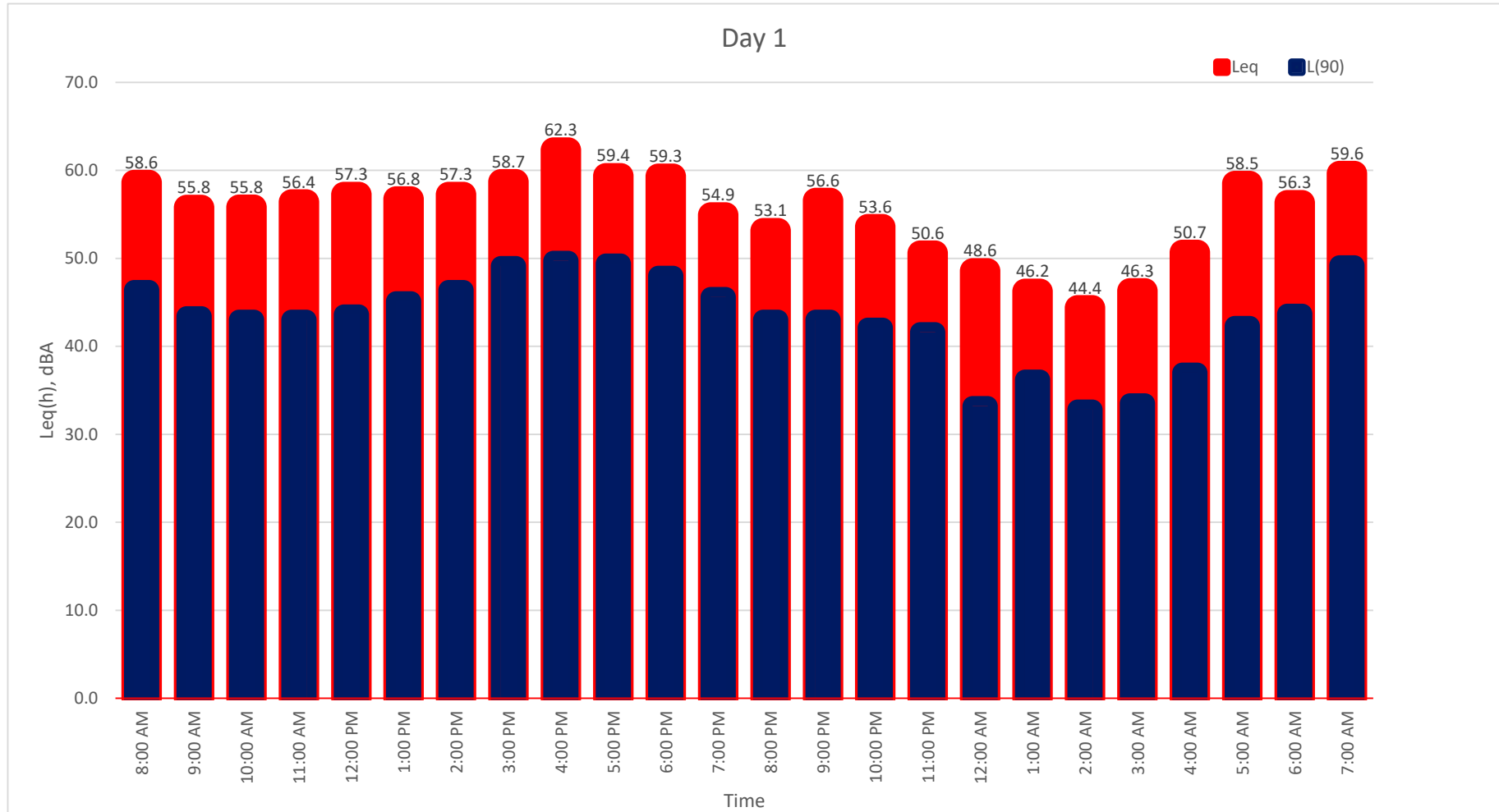
CNEL: 60.9

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET

24-Hour Continuous Noise Measurement Datasheet - Cont.

Project: Farm Market Development
Site Address/Location: 14058 Redlands Blvd, Moreno Valley, CA
Site ID: LT-1

Day: 1 of 1



Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET

Appendix B:
SoundPlan Input/Output

Contribution levels of the receivers

Source name	Level w/o NP		Level w NP	
	Day	Night	Day	Night
	dB(A)		dB(A)	
1 GF	31.8	24.8	0.0	0.0
1	15.4	8.4	0.0	0.0
2	30.8	23.8	0.0	0.0
3	23.8	16.8	0.0	0.0
4	13.2	6.2	0.0	0.0
5	11.8	4.8	0.0	0.0
Gas Canopy	-0.6	-70.6	0.0	0.0
2 GF	49.4	42.4	0.0	0.0
1	20.8	13.8	0.0	0.0
2	49.4	42.4	0.0	0.0
3	26.9	19.9	0.0	0.0
4	18.5	11.5	0.0	0.0
5	20.8	13.8	0.0	0.0
Gas Canopy	15.6	-54.4	0.0	0.0
3 GF	47.6	40.7	0.0	0.0
1	32.5	25.5	0.0	0.0
2	47.3	40.3	0.0	0.0
3	32.7	25.7	0.0	0.0
4	21.9	14.9	0.0	0.0
5	21.2	14.2	0.0	0.0
Gas Canopy	5.6	-64.4	0.0	0.0
4 GF	44.0	37.0	0.0	0.0
1	42.3	35.3	0.0	0.0
2	38.9	31.9	0.0	0.0
3	20.0	13.0	0.0	0.0
4	20.6	13.6	0.0	0.0
5	10.1	3.1	0.0	0.0
Gas Canopy	21.7	-48.3	0.0	0.0
5 GF	40.6	33.4	0.0	0.0
1	37.8	30.8	0.0	0.0
2	34.4	27.4	0.0	0.0
3	31.8	24.8	0.0	0.0
4	26.7	19.7	0.0	0.0
5	22.5	15.6	0.0	0.0
Gas Canopy	26.2	-43.8	0.0	0.0
6 GF	39.4	32.3	0.0	0.0
1	31.2	24.2	0.0	0.0
2	36.6	29.6	0.0	0.0
3	32.2	25.2	0.0	0.0
4	28.9	21.9	0.0	0.0
5	23.7	16.7	0.0	0.0
Gas Canopy	23.7	-46.3	0.0	0.0
7 GF	39.2	32.2	0.0	0.0
1	28.6	21.6	0.0	0.0
2	36.4	29.4	0.0	0.0
3	33.7	26.7	0.0	0.0
4	27.7	20.7	0.0	0.0
5	23.2	16.2	0.0	0.0
Gas Canopy	21.7	-48.3	0.0	0.0

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Noise emissions of industry sources

Source name	Refer	Level dB(A)	Frequency spectrum [dB(A)]																	Corrections									
			50 Hz	63 Hz	80 Hz	100 Hz	125 Hz	160 Hz	200 Hz	250 Hz	315 Hz	400 Hz	500 Hz	630 Hz	800 Hz	1 kHz	1.3 kHz	1.6 kHz	2 kHz	2.5 kHz	3.2 kHz	4 kHz	5 kHz	6.3 kHz	8 kHz	10 kHz	Cw dB	Cl dB	CT dB
Gas Canopy	Lw/u Day Nig	70	27	35	38	47	43	39	43	40	44	48	47	51	58	59	60	60	61	60	60	58	56	54	51	48	-	-	-

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Noise emissions of parking lot traffic

Name	Parking lot type	Low noise trolleys	Size	Movements per hour		Road surface	Separated method	Level dB(A)
				Day	Night			
1	Visitors and staff	-	13 Parking bays	2.500	0.500	Asphaltic driving lane	no	75.6
2	Visitors and staff	-	31 Parking bays	2.500	0.500	Asphaltic driving lane	no	81.3
3	Visitors and staff	-	9 Parking bays	2.500	0.500	Asphaltic driving lane	no	72.5
4	Visitors and staff	-	2 Parking bays	2.500	0.500	Asphaltic driving lane	no	66.0
5	Visitors and staff	-	1 Parking bays	2.500	0.500	Asphaltic driving lane	no	63.0

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Appendix C:
Traffic Noise Modeling Output

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Moreno Valley Farm Market
 ROADWAY: Alessandro blvd
 SEGMENT: Wilmot St to Redlands Blvd
 LOCATION: City of Moreno valley

SCENARIO: Existing

JOB #: 0470-2018-07
 DATE: 1-Oct-19
 ENGINEER: R. Pearson

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = 4,439
 SPEED = 40
 PK HR % = 10
 NEAR LANE/FAR LANE DIST = 12
 ROAD ELEVATION = 0
 GRADE = 0
 PK HR VOL = 444

RECEIVER INPUT DATA

RECEIVER DISTANCE = 50
 DIST C/L TO WALL = 0
 RECEIVER HEIGHT = 5
 WALL DISTANCE FROM RECEIVER = 50
 PAD ELEVATION = 0
 ROADWAY VIEW: LF ANGLE -90
 RT ANGLE 90
 DF ANGLE 180

SITE CONDITIONS

AUTOMOBILES 15
 MED TRUCKS 15 (HARD SITE=10, SOFT SITE=15)
 HVY TRUCKS 15

WALL INFORMATION

HTH WALL = 0 FT
 AMBIENT = 0
 BARRIER = 0 (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.489	0.022	0.489	0.018
HEAVY TRUCKS	0.473	0.054	0.473	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	61.1	59.1	57.8	51.8	60.2	60.8
MEDIUM TRUCKS	52.9	49.0	41.5	50.2	56.4	56.4
HEAVY TRUCKS	53.7	49.7	46.3	50.9	57.1	57.2
VEHICULAR NOISE	62.4	59.9	58.2	55.8	63.0	63.4

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	18	39	84	181
LDN	17	37	79	171

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Moreno Valley Farm Market
 ROADWAY: Alessandro blvd
 SEGMENT: Wilmot St to Redlands blvd
 LOCATION: City of Moreno valley SCENARIO: E+P

JOB #: 0470-2018-07
 DATE: 1-Oct-19
 ENGINEER: R. Pearson

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = 5,262
 SPEED = 40
 PK HR % = 10
 NEAR LANE/FAR LANE DIST = 12
 ROAD ELEVATION = 0
 GRADE = 0
 PK HR VOL = 526

RECEIVER INPUT DATA

RECEIVER DISTANCE = 50
 DIST C/L TO WALL = 0
 RECEIVER HEIGHT = 5
 WALL DISTANCE FROM RECEIVER = 50
 PAD ELEVATION = 0
 ROADWAY VIEW: LF ANGLE -90
 RT ANGLE 90
 DF ANGLE 180

SITE CONDITIONS

AUTOMOBILES 15
 MED TRUCKS 15 (HARD SITE=10, SOFT SITE=15)
 HVY TRUCKS 15

WALL INFORMATION

HTH WALL = 0 FT
 AMBIENT = 0
 BARRIER = 0 (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.489	0.022	0.489	0.018
HEAVY TRUCKS	0.473	0.054	0.473	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	61.9	59.9	58.5	52.5	60.9	61.6
MEDIUM TRUCKS	53.6	49.7	42.2	50.9	57.1	57.1
HEAVY TRUCKS	54.5	50.4	47.0	51.7	57.9	58.0
VEHICULAR NOISE	63.1	60.7	58.9	56.5	63.7	64.1

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	20	44	94	203
LDN	19	41	89	192

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Appendix D:
Construction Noise Modeling Output

Activity	L _{eq} at 15 feet dBA (w/ 12' P/L barrier)*	L _{Max} at 15 feet dBA (w/ 12' P/L barrier)*
Grading	83	87
Building Construction	77	81
Paving	78	82

* See Appendix D for IL Barrier Calculations

Equipment Summary	Reference (dBA) 50 ft L _{max}
Rock Drills	96
Jack Hammers	82
Pneumatic Tools	85
Pavers	80
Dozers	85
Scrappers	87
Haul Trucks	88
Cranes	82
Portable Generators	80
Rollers	80
Tractors	80
Front-End Loaders	86
Hydraulic Excavators	86
Graders	85
Air Compressors	86
Trucks	86

Grading

Noise Level Calculation Prior to Implementation of Noise Attenuation Requirements											
No.	Equipment Description	Reference (dBA) 50 ft Lmax	Quantity	Usage Factor ¹	Distance to Receptor (ft)	Ground Effect	Shielding (dBA)	Calculated (dBA)		Energy	
								Lmax*	Leq		
1	Grader	85	1	40	15	0	0	95.5	91.5	1405456738	
2	Dozer	85	1	40	15	0	0	95.5	91.5	1405456738	
3	Tractor/Backhoe	80	1	40	15	0	0	90.5	86.5	444444444	
4	Excavators	86	1	40	15	0	0	96.5	92.5	1769365202	
5	Scrapers	87	1	40	15	0	0	97.5	93.5	2227498816	
								Lmax*	103	Leq	99
								Lw	134	Lw	130

Source: MD Acoustics, Oct 2019.

1- Percentage of time that a piece of equipment is operating at full power.

dBA – A-weighted Decibels

Lmax- Maximum Level

Leq- Equivalent Level

Feet	Meters	Ground Effect	No Shielding Leq dBA	1 dBA Shielding Leq dBA	2 dBA Shielding Leq dBA	3 dBA Shielding Leq dBA	4 dBA Shielding Leq dBA	5 dBA Shielding Leq dBA	6 dBA Shielding Leq dBA	7 dBA Shielding Leq dBA	8 dBA Shielding Leq dBA	9 dBA Shielding Leq dBA	10 dBA Shielding Leq dBA	11 dBA Shielding Leq dBA	12 dBA Shielding Leq dBA	13 dBA Shielding Leq dBA	14 dBA Shielding Leq dBA	15 dBA Shielding Leq dBA
50	15.2	0	99	98	97	96	95	94	93	92	91	90	89	88	87	86	85	84
60	18.3	0	97	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82
70	21.3	0	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81
80	24.4	0	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81	80
90	27.4	0	93	92	91	90	89	88	87	86	85	84	83	82	81	80	79	78
100	30.5	0	93	92	91	90	89	88	87	86	85	84	83	82	81	80	79	78
110	33.5	0	92	91	90	89	88	87	86	85	84	83	82	81	80	79	78	77
120	36.6	0	91	90	89	88	87	86	85	84	83	82	81	80	79	78	77	76
130	39.6	0	90	89	88	87	86	85	84	83	82	81	80	79	78	77	76	75
140	42.7	0	90	89	88	87	86	85	84	83	82	81	80	79	78	77	76	75
150	45.7	0	89	88	87	86	85	84	83	82	81	80	79	78	77	76	75	74
160	48.8	0	89	88	87	86	85	84	83	82	81	80	79	78	77	76	75	74
170	51.8	0	88	87	86	85	84	83	82	81	80	79	78	77	76	75	74	73
180	54.9	0	87	86	85	84	83	82	81	80	79	78	77	76	75	74	73	72
190	57.9	0	87	86	85	84	83	82	81	80	79	78	77	76	75	74	73	72
200	61.0	0	87	86	85	84	83	82	81	80	79	78	77	76	75	74	73	72
210	64.0	0	86	85	84	83	82	81	80	79	78	77	76	75	74	73	72	71
220	67.1	0	86	85	84	83	82	81	80	79	78	77	76	75	74	73	72	71
230	70.1	0	85	84	83	82	81	80	79	78	77	76	75	74	73	72	71	70
240	73.1	0	85	84	83	82	81	80	79	78	77	76	75	74	73	72	71	70
250	76.2	0	85	84	83	82	81	80	79	78	77	76	75	74	73	72	71	70
260	79.2	0	84	83	82	81	80	79	78	77	76	75	74	73	72	71	70	69
270	82.3	0	84	83	82	81	80	79	78	77	76	75	74	73	72	71	70	69
280	85.3	0	84	83	82	81	80	79	78	77	76	75	74	73	72	71	70	69
290	88.4	0	83	82	81	80	79	78	77	76	75	74	73	72	71	70	69	68
300	91.4	0	83	82	81	80	79	78	77	76	75	74	73	72	71	70	69	68
310	94.5	0	83	82	81	80	79	78	77	76	75	74	73	72	71	70	69	68
320	97.5	0	82	81	80	79	78	77	76	75	74	73	72	71	70	69	68	67
330	100.6	0	82	81	80	79	78	77	76	75	74	73	72	71	70	69	68	67
340	103.6	0	82	81	80	79	78	77	76	75	74	73	72	71	70	69	68	67
350	106.7	0	82	81	80	79	78	77	76	75	74	73	72	71	70	69	68	67
360	109.7	0	81	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66
370	112.8	0	81	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66

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Building Construction

Noise Level Calculation Prior to Implementation of Noise Attenuation Requirements											
No.	Equipment Description	Reference (dBA) 50 ft Lmax	Quantity	Usage Factor ¹	Distance to Receptor (ft)	Ground Effect	Shielding (dBA)	Calculated (dBA)		Energy	
								Lmax	Leq		
1	Cranes	82	1	40	15	0	0	92.5	88.5	704396974	
2	Forklift/Tractor	80	1	40	15	0	0	90.5	86.5	444444444	
3	Generator	80	1	40	15	0	0	90.5	86.5	444444444	
4	Tractor/Backhoe	80	1	40	15	0	0	90.5	86.5	444444444	
								Lmax*	97	Leq	93
								Lw	129	Lw	125

Source: MD Acoustics, Oct 2019.

1- Percentage of time that a piece of equipment is operating at full power.

dBA – A-weighted Decibels

Lmax- Maximum Level

Leq- Equivalent Level

Feet	Meters	Ground Effect	No Shielding Leq dBA	1 dBA Shielding Leq dBA	2 dBA Shielding Leq dBA	3 dBA Shielding Leq dBA	4 dBA Shielding Leq dBA	5 dBA Shielding Leq dBA	6 dBA Shielding Leq dBA	7 dBA Shielding Leq dBA	8 dBA Shielding Leq dBA	9 dBA Shielding Leq dBA	10 dBA Shielding Leq dBA	11 dBA Shielding Leq dBA	12 dBA Shielding Leq dBA	13 dBA Shielding Leq dBA	14 dBA Shielding Leq dBA	15 dBA Shielding Leq dBA
50	15.2	0	93	92	91	90	89	88	87	86	85	84	83	82	81	80	79	78
60	18.3	0	92	91	90	89	88	87	86	85	84	83	82	81	80	79	78	77
70	21.3	0	90	89	88	87	86	85	84	83	82	81	80	79	78	77	76	75
80	24.4	0	89	88	87	86	85	84	83	82	81	80	79	78	77	76	75	74
90	27.4	0	88	87	86	85	84	83	82	81	80	79	78	77	76	75	74	73
100	30.5	0	87	86	85	84	83	82	81	80	79	78	77	76	75	74	73	72
110	33.5	0	86	85	84	83	82	81	80	79	78	77	76	75	74	73	72	71
120	36.6	0	85	84	83	82	81	80	79	78	77	76	75	74	73	72	71	70
130	39.6	0	85	84	83	82	81	80	79	78	77	76	75	74	73	72	71	70
140	42.7	0	84	83	82	81	80	79	78	77	76	75	74	73	72	71	70	69
150	45.7	0	84	83	82	81	80	79	78	77	76	75	74	73	72	71	70	69
160	48.8	0	83	82	81	80	79	78	77	76	75	74	73	72	71	70	69	68
170	51.8	0	82	81	80	79	78	77	76	75	74	73	72	71	70	69	68	67
180	54.9	0	82	81	80	79	78	77	76	75	74	73	72	71	70	69	68	67
190	57.9	0	81	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66
200	61.0	0	81	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66
210	64.0	0	81	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66
220	67.1	0	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65
230	70.1	0	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65
240	73.1	0	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64
250	76.2	0	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64
260	79.2	0	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64
270	82.3	0	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63
280	85.3	0	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63
290	88.4	0	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63
300	91.4	0	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63
310	94.5	0	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62
320	97.5	0	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62
330	100.6	0	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62
340	103.6	0	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62	61
350	106.7	0	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62	61
360	109.7	0	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62	61
370	112.8	0	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62	61

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Paving

Noise Level Calculation Prior to Implementation of Noise Attenuation Requirements											
No.	Equipment Description	Reference (dBA) 50 ft Lmax	Quantity	Usage Factor ¹	Distance to Receptor (ft)	Ground Effect	Shielding (dBA)	Calculated (dBA)		Energy	
								Lmax	Leq		
1	Pavers	86	1	40	15	0	0	96.5	92.5	1769365202	
2	Rollers	80	1	40	15	0	0	90.5	86.5	4444444444	
3	Paving Equipment	80	1	40	15	0	0	90.5	86.5	4444444444	
								Lmax*	98	Leq	94
								Lw	130	Lw	126

Source: MD Acoustics, Oct 2019.

1- Percentage of time that a piece of equipment is operating at full power.

dBA – A-weighted Decibels

Lmax- Maximum Level

Leq- Equivalent Level

Feet	Meters	Ground Effect	No Shielding Leq dBA	1 dBA Shielding Leq dBA	2 dBA Shielding Leq dBA	3 dBA Shielding Leq dBA	4 dBA Shielding Leq dBA	5 dBA Shielding Leq dBA	6 dBA Shielding Leq dBA	7 dBA Shielding Leq dBA	8 dBA Shielding Leq dBA	9 dBA Shielding Leq dBA	10 dBA Shielding Leq dBA	11 dBA Shielding Leq dBA	12 dBA Shielding Leq dBA	13 dBA Shielding Leq dBA	14 dBA Shielding Leq dBA	15 dBA Shielding Leq dBA
50	15.2	0	94	93	92	91	90	89	88	87	86	85	84	83	82	81	80	79
60	18.3	0	93	92	91	90	89	88	87	86	85	84	83	82	81	80	79	78
70	21.3	0	91	90	89	88	87	86	85	84	83	82	81	80	79	78	77	76
80	24.4	0	90	89	88	87	86	85	84	83	82	81	80	79	78	77	76	75
90	27.4	0	89	88	87	86	85	84	83	82	81	80	79	78	77	76	75	74
100	30.5	0	88	87	86	85	84	83	82	81	80	79	78	77	76	75	74	73
110	33.5	0	87	86	85	84	83	82	81	80	79	78	77	76	75	74	73	72
120	36.6	0	87	86	85	84	83	82	81	80	79	78	77	76	75	74	73	72
130	39.6	0	86	85	84	83	82	81	80	79	78	77	76	75	74	73	72	71
140	42.7	0	85	84	83	82	81	80	79	78	77	76	75	74	73	72	71	70
150	45.7	0	85	84	83	82	81	80	79	78	77	76	75	74	73	72	71	70
160	48.8	0	84	83	82	81	80	79	78	77	76	75	74	73	72	71	70	69
170	51.8	0	84	83	82	81	80	79	78	77	76	75	74	73	72	71	70	69
180	54.9	0	83	82	81	80	79	78	77	76	75	74	73	72	71	70	69	68
190	57.9	0	83	82	81	80	79	78	77	76	75	74	73	72	71	70	69	68
200	61.0	0	82	81	80	79	78	77	76	75	74	73	72	71	70	69	68	67
210	64.0	0	82	81	80	79	78	77	76	75	74	73	72	71	70	69	68	67
220	67.1	0	81	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66
230	70.1	0	81	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66
240	73.1	0	81	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66
250	76.2	0	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65
260	79.2	0	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65
270	82.3	0	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65
280	85.3	0	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64
290	88.4	0	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64
300	91.4	0	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64
310	94.5	0	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63
320	97.5	0	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63
330	100.6	0	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63
340	103.6	0	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63
350	106.7	0	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62
360	109.7	0	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62
370	112.8	0	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62

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Barrier insertion loss For Flat Ground

Receiver - North P/L

Enter variables here:

Source Height H_s (ft)	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Receiver Height H_R (ft)	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Barrier Height H_B (ft)	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
Distance Source to barrier (ft)	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Distance Receiver to Barrier (ft)	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Soft Ground = 1; Hard Ground = 0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Calculations

A	10.77033	11.18034	11.66190379	12.206556	12.806248	13.453624	14.142136	14.866069	15.620499	16.401219	17.204651	18.027756	18.867962	19.723083	20.59126	21.470911
B	8.6023253	9.4339811	10.29563014	11.18034	12.083046	13	13.928388	14.866069	15.811388	16.763055	17.720045	18.681542	19.646883	20.615528	21.587033	22.561028
C	15.297059	15.297059	15.29705854	15.297059	15.297059	15.297059	15.297059	15.297059	15.297059	15.297059	15.297059	15.297059	15.297059	15.297059	15.297059	15.297059
P	4.0755963	5.3172625	6.66047539	8.089837	9.5922359	11.156566	12.773465	14.435079	16.134829	17.867216	19.627637	21.41224	23.217786	25.041553	26.881235	28.73488
Ground type H_{eff} (with barrier)	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Ground type H_{eff} (no barrier)	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
H_{eff} (with barrier)	18.5	19.5	20.5	21.5	22.5	23.5	24.5	25.5	26.5	27.5	28.5	29.5	30.5	31.5	32.5	33.5
H_{eff} no barrier	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
G_B	0.4196429	0.4017857	0.383928571	0.3660714	0.3482143	0.3303571	0.3125	0.2946429	0.2767857	0.2589286	0.2410714	0.2232143	0.2053571	0.1875	0.1696429	0.1517857
G_{NB}	0.6339286	0.6339286	0.633928571	0.6339286	0.6339286	0.6339286	0.6339286	0.6339286	0.6339286	0.6339286	0.6339286	0.6339286	0.6339286	0.6339286	0.6339286	0.6339286
$A_{barrier}$	19.095386	20.250355	21.22852671	22.072872	22.812673	23.46878	24.056562	24.587666	25.071118	25.514043	25.922155	26.300095	26.651683	26.980087	27.287967	27.577568

$IL_{barrier}$	16.1	16.2	16.3	16.4	16.5	16.6	16.7	16.8	16.9	17.0	17.1	17.1	17.2	17.3	17.4	17.5
----------------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------

Barrier Height (ft)	IL (dBA)
12	16
13	16
14	16
15	16
16	16
17	17
18	17
19	17
20	17
21	17
22	17
23	17
24	17
25	17
26	17
27	18

VIBRATION LEVEL IMPACT		
Project:	Moreno Valley farm Market	Date: 10/2/19
Source:	Large Bulldozer	
Scenario:	Unmitigated	
Location:	Project Site	
Address:		
PPV = PPVref(25/D)^n (in/sec)		

DATA INPUT		
Equipment =	2	Large Bulldozer
Type		INPUT SECTION IN BLUE
PPVref =	0.089	Reference PPV (in/sec) at 25 ft.
D =	15.00	Distance from Equipment to Receiver (ft)
n =	1.10	Vibration attenuation rate through the ground
Note: Based on reference equations from Vibration Guidance Manual, California Department of Transportation, 2006, pgs 38-43.		

DATA OUT RESULTS		
PPV =	0.156	IN/SEC
OUTPUT IN RED		

Appendix H Traffic Studies

Appendix H-1 - Traffic Impact Study



**REDLANDS ALESSANDRO
COMMERCIAL PLAZA
Traffic Impact Analysis
City of Moreno Valley, California**

Prepared for:
Heady Design Inc.
7365 Carnelian St, Suite 239
Rancho Cucamonga, CA 91730

Prepared by:
TJW ENGINEERING, INC.
6 Venture, Suite 225
Irvine, CA 92618

October 15, 2020



TJW ENGINEERING, INC.
TRAFFIC ENGINEERING &
TRANSPORTATION PLANNING
CONSULTANTS

October 15, 2020

Harry Heady
Heady Design Inc.
7365 Carnelian St, Suite 239
Rancho Cucamonga, CA 91730

**Subject: Traffic Impact Analysis: Redlands Alessandro Commercial Plaza,
City of Moreno Valley CA**

Dear Mr. Heady:

TJW ENGINEERING, INC. (TJW) is pleased to present you with this traffic impact analysis for the proposed **Redlands Alessandro Commercial Plaza** project located at the southeast corner of the intersection of Redlands Boulevard and Alessandro Boulevard in the City of Moreno Valley.

This traffic study has been prepared to meet the traffic study requirements for the City of Moreno Valley and assesses the projected traffic operations associated with the proposed project and its impact on the local street network. This report is being submitted to you for review and forwarding to the City of Moreno Valley.

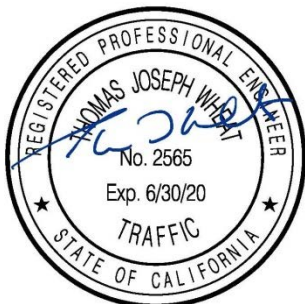
Please contact us at (949) 878-3509 if you have any questions regarding this analysis.
Sincerely,

Thomas Wheat, PE, TE
President

David Chew, PTP
Transportation Planner

Registered Civil Engineer #69467
Registered Traffic Engineer #2565

Jeffrey Chinchilla, PE
Project Engineer



**REDLANDS ALESSANDRO
COMMERCIAL PLAZA
Traffic Impact Analysis
City of Moreno Valley, California**

Prepared for:

Heady Design Inc.
7365 Carnelian St, Suite 239
Rancho Cucamonga, CA 91730

Prepared by:



TJW ENGINEERING, INC.
TRAFFIC ENGINEERING &
TRANSPORTATION PLANNING
CONSULTANTS

6 Venture, Suite 225
Irvine, CA 92618

Thomas Wheat, PE, TE
David Chew, PTP
Jeffrey Chinchilla, PE

October 15, 2020
JN: HDI-19-002

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1.0 EXECUTIVE SUMMARY

This traffic impact analysis (TIA) analyzes the projected traffic operations associated with the proposed **Redlands Alessandro Commercial Plaza** project located at the southeast corner of the intersection of Redlands Boulevard and Alessandro Boulevard. The purpose of this TIA is to evaluate potential circulation system deficiencies that may result from development of the proposed project, and to recommend improvements to achieve acceptable operations, if applicable. This analysis has been prepared in coordination with the City of Moreno Valley via a scoping agreement (See **Appendix A**) and is pursuant to applicable City of Moreno Valley and County of Riverside traffic impact analysis guidelines.

The proposed project consists of a 2,000 square foot commercial building, a 2,500 square foot restaurant, and a gas station with 8 vehicle fueling positions. The site is currently zoned as Village Commercial (VC) and classified as Commercial Land Use in the City of Moreno Valley General Plan Land Use Map. The project site is currently partially occupied by an existing market which will remain and is incorporated into the project site plan. The proposed project land use is permitted in the zone and does not require a zone change or General Plan amendment.

The proposed project is anticipated to be built and generating trips in 2024. A growth rate of 2% was used to account future traffic volumes.

The proposed project is projected to generate 110 total AM peak hour trips, 146 total PM peak hour trips and 1,732 total daily trips. After appropriate pass-by trip discounts, the proposed project is projected to generate 55 net AM peak hour trips, 71 net PM peak hour trips, and 984 net daily trips.

The following seven (7) intersections in the vicinity of the project site have been included in the intersection level of service (LOS) analysis:

1. Wilmot Street/Alessandro Boulevard
2. Redlands Boulevard/Cottonwood Avenue
3. Redlands Boulevard/Alessandro Boulevard
4. Redlands Boulevard/Cactus Avenue
5. Merwin Street/Alessandro Boulevard
6. Redlands Boulevard/Driveway 1
7. Driveway 2/Alessandro Boulevard

The following roadway segments have been analyzed based on the level of service “E” capacities:

1. Alessandro Boulevard between Wilmot Street and Redlands Boulevard.

This traffic analysis follows the *City of Moreno Valley Traffic Impact Analysis Preparation Guide* (August 2007) and *County of Riverside Transportation Department Traffic Impact Analysis Preparation Guide* (April 2008).

The study intersections and roadway segments are analyzed for the following study scenarios:

- Existing Conditions;

- Existing plus Project Conditions (EP);
- Existing plus Ambient plus Cumulative (EAC) Conditions; and
- Existing plus Ambient plus Cumulative plus Project (EACP) Conditions.

1.1 SUMMARY OF ANALYSIS RESULTS

Table ES-1 summarizes the results of the intersection level of service analysis based on the City of Moreno Valley thresholds of significance for analyzing transportation impacts.

Table ES-1: Summary of Significant Impacts at Study Intersections

Intersection	EP	EAC	EACP
#1 - Wilmot Street/Alessandro Boulevard			
#2 - Redlands Boulevard/Cottonwood Avenue			
#3 - Redlands Boulevard/Alessandro Boulevard	Cumulative	Cumulative	Cumulative
#4 - Redlands Boulevard/Cactus Avenue			
#5 - Merwin Street/Alessandro Boulevard			
#6 - Redlands Boulevard/Driveway 1			
#7 - Driveway 2/Alessandro Boulevard			

According to case law such as *Los Angeles Unified Sch. Dist. V City of Los Angeles* (1997) 58 Cal. App. 4th 1019 and *Communities for A Better Env't V California Resource Agency* (2002) 103 Cal. App. 4th 98, a project that results in an increase to an impact that already exceeds the established thresholds contributes to a cumulative impact as opposed to a direct impact. Therefore, as shown in **Table ES-1** all impacts at study intersections are projected to be cumulative impacts.

The proposed project will participate in the cost of off-site improvements through payments to the City and/or County adopted Transportation Uniform Mitigation Fee Program (TUMF) and Development Impact Fee Program (DIF). The project's contribution to the aforementioned transportation impact fee programs or as a fair share contribution towards a cumulatively impacted facility not found to be covered by a pre-existing fee program should be considered sufficient to address the project's fair share towards infrastructure improvements designed to alleviate cumulative project impacts.

Existing Conditions

The study intersections are currently operating at an acceptable LOS during the AM and PM peak hours for *existing* conditions with the exception of the following intersection:

- #3 - Redlands Blvd/Alessandro Blvd (LOS D AM/PM Hour).

The roadway segment is currently operating at an acceptable LOS for *existing* conditions.

Existing Plus Project (EP) Conditions

The study intersections are projected to operate at an acceptable LOS during the AM and PM peak hours for *EP* conditions with the exception of the following intersection:

- #3 - Redlands Blvd/Alessandro Blvd (LOS E AM/LOS D PM Hour).

The roadway segment is projected to operate at an acceptable LOS for *EP* conditions.

Existing plus Ambient plus Cumulative (EAC) Conditions

The study intersections are projected to operate at an acceptable LOS during the AM and PM peak hours for *EAC* conditions with the exception of the following intersection:

- #3 - Redlands Blvd/Alessandro Blvd (LOS F AM/PM Hour).

The roadway segment is projected to operate at an acceptable LOS for *EAC* conditions.

Existing plus Ambient plus Cumulative plus Project (EACP) Conditions

The study intersections are projected to operate at an acceptable LOS during the AM and PM peak hours for *EACP* conditions with the exception of the following intersection:

- #3 - Redlands Blvd/Alessandro Blvd (LOS F AM/PM Hour).

The roadway segment is projected to operate at an acceptable LOS for *EACP* conditions.

1.2 ON-SITE ROADWAY AND SITE ACCESS IMPROVEMENTS

Wherever necessary, roadways adjacent to the proposed project site and site access points will be constructed in compliance with recommended roadway classifications and respective cross-sections in the City of Moreno Valley General Plan or as directed by the City Engineer.

Sight distance at each project access point should be reviewed with respect to standard Caltrans and City sight distance standards at the time of final grading, landscaping and street improvement plans.

Signing/stripping should be implemented in conjunction with detailed construction plans for the project site.

1.3 SUMMARY OF IMPACTS AND RECOMMENDED IMPROVEMENTS

The following improvements are recommended at the impacted study intersections for corresponding conditions to reduce peak hour delay and improve intersection and roadway segment LOS to acceptable conditions:

EP Recommended Improvement (EP-1): Redlands Blvd/Alessandro Blvd – Improve intersection to include a northbound left turn lane and a southbound left turn lane. Signalize existing intersection to include

northbound and southbound protected left turn lanes.

EACP Recommended Improvement (EACP-1): Redlands Blvd/Alessandro Blvd – Improve intersection to include a northbound left turn lane and a southbound left turn lane. Signalize existing intersection to include northbound and southbound protected left turn lanes.

The project's contribution to applicable development impact fee programs or as a fair share contribution towards a cumulatively impacted facility not found to be covered by a pre-existing fee program should be considered sufficient to address the project's fair share towards infrastructure improvements to alleviate cumulative project impacts.

1.4 SUMMARY OF LOCAL AND REGIONAL FUNDING MECHANISMS

The proposed project will participate in the cost of off-site improvements through payment of TUMF fees based on the current fees at the time of construction of the proposed project. The proposed project is located within the City of Moreno Valley and will therefore be subject to the City's Development Impact Fees (DIF). The proposed project will participate in the cost of off-site improvements through payment of City DIF fees based on the current fees at the time of construction of the proposed project.

The project's contribution to the aforementioned transportation impact fee programs or as a fair share contribution towards a cumulatively impacted facility not found to be covered by a pre-existing fee program should be considered sufficient to address the project's fair share towards infrastructure improvements designed to alleviate cumulative project impacts. **Table ES-2** calculates the proposed project's fair share percentage at cumulative impacted intersections.

Table ES-2: Fair Share Calculations

Intersection	Existing AM&PM Peak Hour Volume (A)	EACP AM&PM Peak Hour Volume (B)	Project AM&PM Peak Hour Volume (C)	Fair Share (C) / (B-A)
#3 - Redlands Blvd/Alessandro Blvd	2391	3071	103	15.15%

2.0 INTRODUCTION

This traffic impact analysis (TIA) analyzes the projected traffic operations associated with the proposed **Redlands Alessandro Commercial Plaza** project located at the southeast corner of the intersection of Redlands Boulevard and Alessandro Boulevard. The purpose of this TIA is to evaluate potential circulation system deficiencies that may result from development of the proposed project, and to recommend improvements to achieve acceptable operations, if applicable. This analysis has been prepared in coordination with the City of Moreno Valley via a scoping agreement (See **Appendix A**) and is pursuant to applicable City of Moreno Valley and County of Riverside impact analysis guidelines.

2.1 PROJECT DESCRIPTION

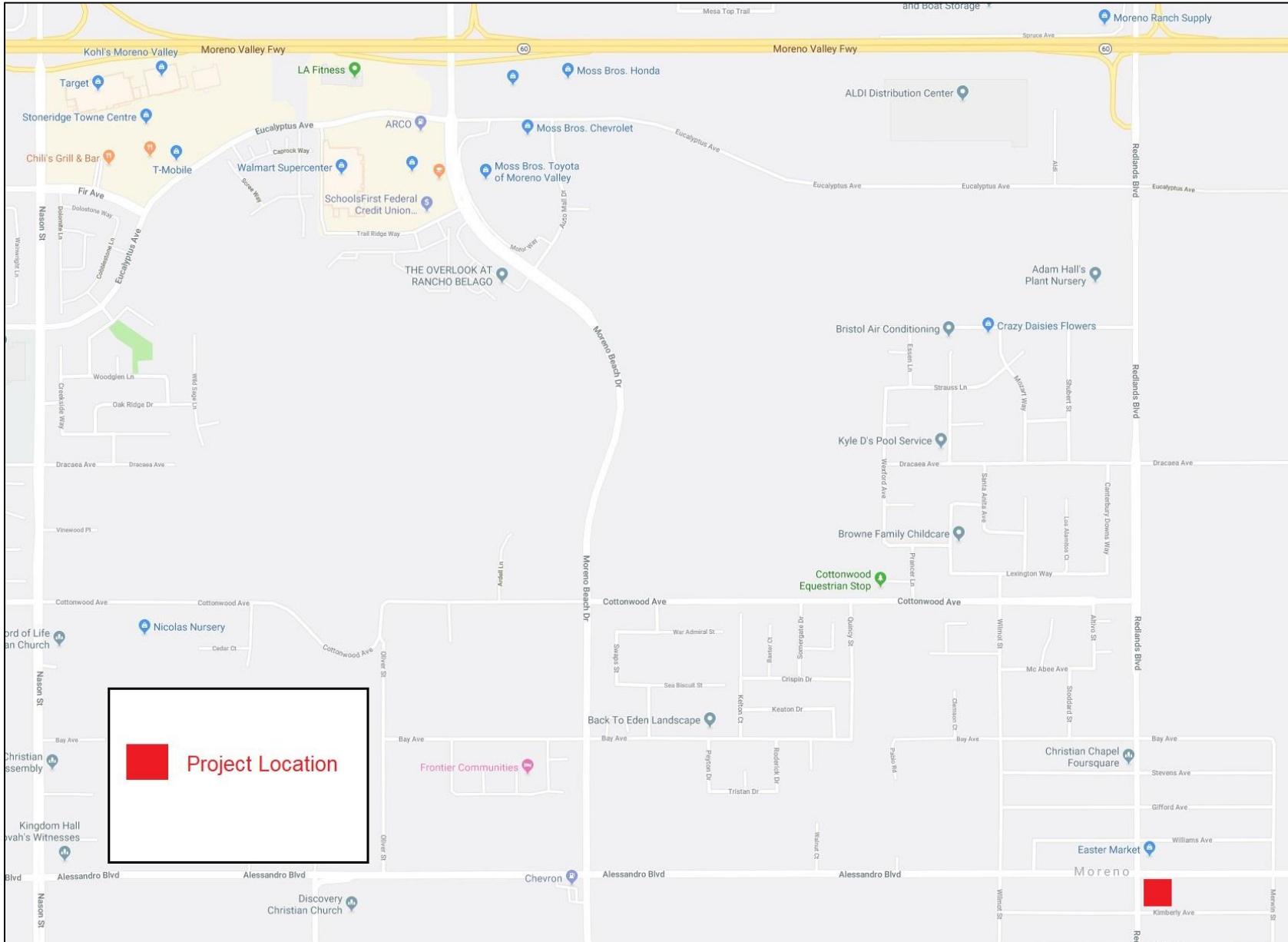
The proposed project consists of a 2,000 square foot commercial building, a 2,500 square foot restaurant, and a gas station with 8 vehicle fueling positions. The site is currently zoned as Village Commercial (VC) and classified as Commercial Land Use in the City of Moreno Valley General Plan Land Use Map. The project site is currently partially occupied by an existing market which will remain and is incorporated to the project site plan. The proposed project land use is permitted in the zone and does not require a zone change or General Plan amendment.

Site access is planned via one right-in/right-out driveway on Redlands Boulevard and one right-in/right-out driveway on Alessandro Boulevard.

The proposed project is anticipated to be built and generating trips in 2024. A growth rate of 2% was used to account future traffic volumes.

Figure 1 shows the project site location. **Exhibit 1** shows the proposed project site plan.

Figure 1 – Project Location



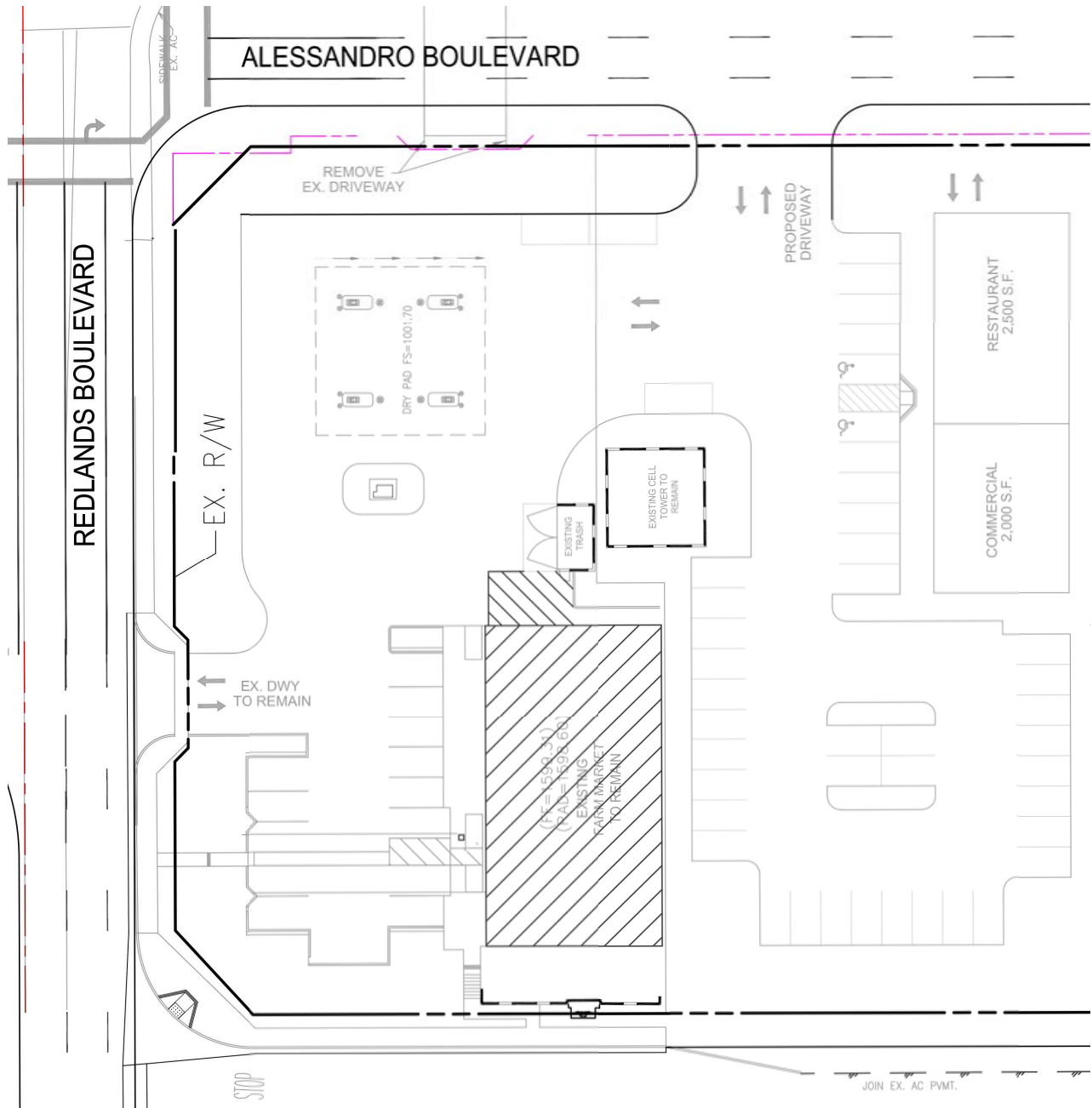


Exhibit 1: Proposed Project Site Plan

HDI-19-002: Redlands Alessandro Commercial Plaza Traffic Impact Analysis



2.2 STUDY AREA

The following seven (7) intersections in the vicinity of the project site have been included in the intersection level of service (LOS) analysis:

1. Wilmot Street/Alessandro Boulevard
2. Redlands Boulevard/Cottonwood Avenue
3. Redlands Boulevard/Alessandro Boulevard
4. Redlands Boulevard/Cactus Avenue
5. Merwin Street/Alessandro Boulevard
6. Redlands Boulevard/Driveway 1
7. Driveway 2/Alessandro Boulevard

The following roadway segments have been analyzed based on the level of service “E” capacities:

1. Alessandro Boulevard between Wilmot Street and Redlands Boulevard.

This traffic analysis follows the *City of Moreno Valley Traffic Impact Analysis Preparation Guide* (August 2007) and *County of Riverside Transportation Department Traffic Impact Analysis Preparation Guide* (April 2008).

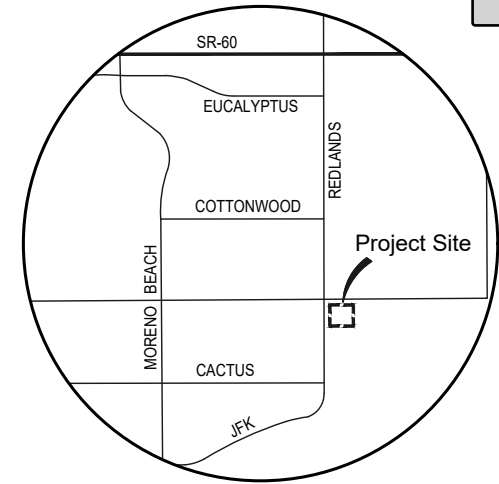
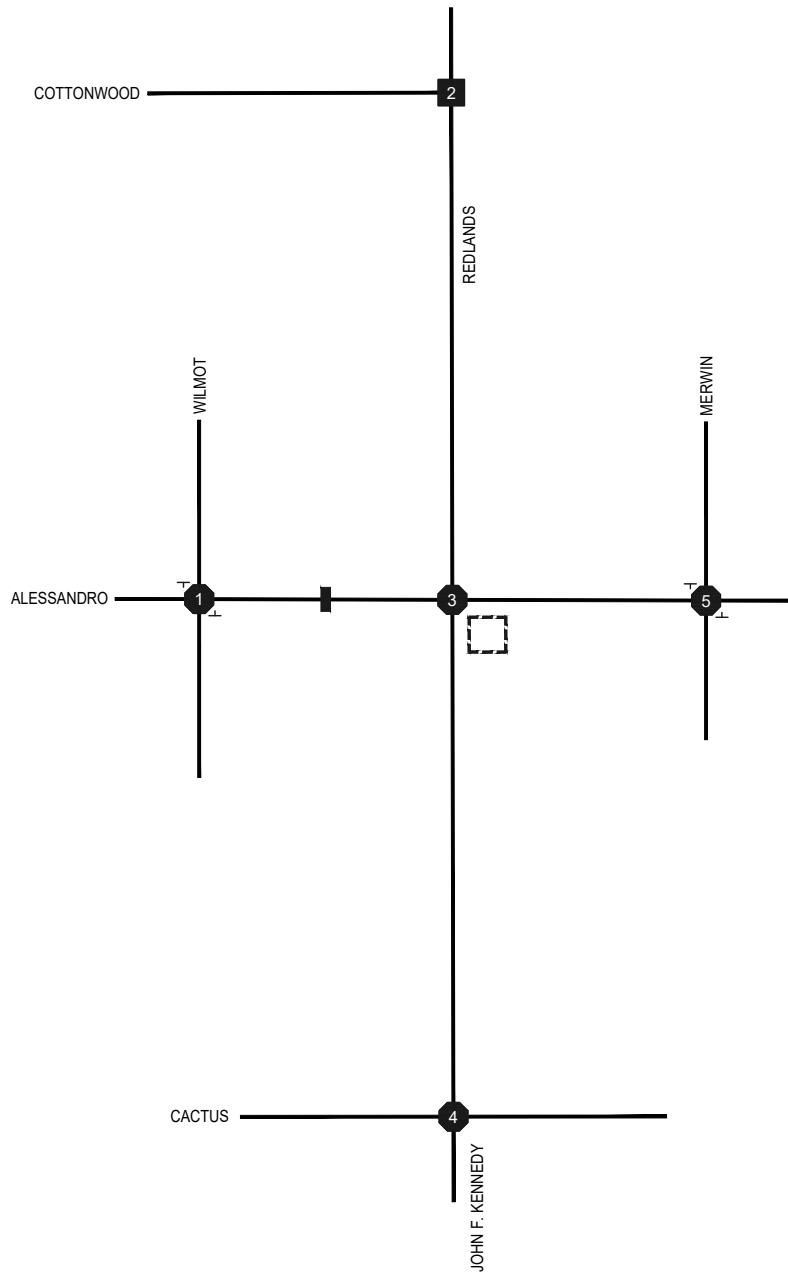
The study intersections and roadway segments are all located within the City of Moreno Valley.

Exhibit 2 shows the location of the study intersections and roadway segments which are analyzed for the following study scenarios:




- Existing Conditions;
- Existing plus Project (EP) Conditions;
- Existing plus Ambient plus Project (EAP) Conditions; and
- Existing plus Ambient plus Project plus Cumulative (EACP) Conditions.

Traffic operations are evaluated for the following time periods:

- Weekday AM Peak Hour occurring within 7:00 AM to 9:00 AM; and
- Weekday PM Peak Hour occurring within 4:00 PM to 6:00 PM.



Legend:

-  Project Site
-  Study Intersection Location
-  Study Roadway Segment



TJW ENGINEERING, INC.

Exhibit 2: Project Location and Proposed TIA Study Area

HDI-19-002: Redlands Alessandro Commercial Plaza Traffic Impact Analysis



Not to Scale

2.3 ANALYSIS METHODOLOGY

2.3.1 Intersection Analysis Methodology

Level of Service (LOS) is commonly used to describe the quality of flow on roadways and at intersections using a range of LOS from LOS A (free flow with little congestion) to LOS F (severely congested conditions). The definitions for LOS for interruption of traffic flow differ depending on the type of traffic control (traffic signal, unsignalized intersection with side street stops, unsignalized intersection with all-way stops). The *Highway Capacity Manual (HCM) 6* (Transportation Research Board, 2016) methodology expresses the LOS of an intersection in terms of delay time for the intersection approaches. The HCM methodology utilizes different procedures for different types of intersection control.

The City of Moreno Valley traffic study guidelines require signalized intersection operations be analyzed utilizing the HCM 6th Edition methodology. Intersection LOS for signalized intersections is based on the intersections average control delay for all movements at the intersection during the peak hour. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay.

Table 1 describes the general characteristics of traffic flow and accompanying delay ranges at signalized intersections.

Table 1:
HCM – LOS & Delay Ranges – Signalized Intersections

Level Of Service	Description	Delay (in seconds)
A	Very favorable progression; most vehicles arrive during green signal and do not stop. Short cycle lengths.	0 – 10.00
B	Good progression, short cycle lengths. More vehicles stop than for LOS A.	10.01 – 20.00
C	Fair progression; longer cycle lengths. Individual cycle failures may begin to appear. The number of vehicles stopping is significant, though many vehicles still pass through without stopping.	20.01 – 35.00
D	Progression less favorable, longer cycle length and high flow/capacity ratio. The proportion of vehicles that pass through without stopping diminishes. Individual cycle failures are obvious.	35.01 – 55.00
E	Severe congestion with some long standing queues on critical approaches. Poor progression, long cycle lengths and high flow/capacity ratio. Individual cycle failures are frequent.	55.01 – 80.00
F	Very poor progression, long cycle lengths and many individual cycle failures. Arrival flow rates exceed capacity of intersection.	> 80.01

Source: Transportation Research Board, *Highway Capacity Manual*, HCM6 Edition (Washington D.C., 2016).

Collected peak hour traffic volumes have been adjusted using a peak hour factor (PHF) to reflect peak 15-minute volumes. It is a common practice in LOS analysis to conservatively use a peak 15-minute flow rate applied to the entire hour to derive flow rates in vehicles per hour that are used in the LOS analysis. The PHF is the relationship between the peak 15-minute flow rate and the full hourly volume. $PHF = \frac{\text{Hourly Volume}}{4 * \text{Peak 15-Minute Volume}}$. The use of a 15-minute PHF produces a more detailed and conservative analysis compared to analyzing vehicles per hour. Existing PHFs, obtained from the existing traffic counts have been used for all analysis scenarios in this study.

The City of Moreno Valley traffic study guidelines also require unsignalized intersection operations be analyzed utilizing the HCM 6th Edition methodology. Intersection operation for unsignalized intersections is based on the weighted average control delay expressed in seconds per vehicle.

At a two-way or side-street stop-controlled intersection, LOS is calculated for each stop-controlled minor street movement, for the left-turn movement(s) from the major street, and for the intersection as a whole. For approaches consisting of a single lane, the delay is calculated as the average of all movements in that lane. For all-way stop-controlled intersection, LOS is computed for the intersection as a whole.

Table 2 describes the general characteristics of traffic flow and accompanying delay ranges at unsignalized intersections.

Table 2:
HCM – LOS & Delay Ranges – Unsignalized Intersections

Level Of Service	Description	Delay (in seconds)
A	Little or no delays.	0 – 10.00
B	Short traffic delays.	10.01 – 15.00
C	Average traffic delays.	15.01 – 25.00
D	Long traffic delays. Multiple vehicles in queue.	25.01 – 35.00
E	Very long delays. Demand approaching capacity of intersection	35.01 – 50.00
F	Very constrained flow with extreme delays and intersection capacity exceeded.	> 50.01

Source: Transportation Research Board, *Highway Capacity Manual*, HCM6 Edition (Washington D.C., 2016).

This analysis utilizes *Trafficware's Synchro*, Version 10 analysis software for all signalized and unsignalized intersections. Synchro is a macroscopic traffic software program that is based on the signalized intersection capacity analysis specified in Chapter 16 of the HCM. The level of service and capacity analysis performed within Synchro takes the optimization and coordination of signalized intersections within a network into consideration.

2.3.2 Roadway Segment Capacity Analysis

Roadway segment operations have been evaluated using the roadway segment capacity thresholds contained in *City of Moreno Valley Traffic Impact Analysis Preparation Guide*. The daily roadway segment capacity for each type of roadway is shown in **Table 3**. Roadway capacities tend to be guidelines estimated for planning purposes and are affected by factors such as intersection spacing, configuration and control, access control, roadway grade, design geometrics, sight distance and vehicle mix.

Table 3:
City of Moreno Valley Roadway Segment Thresholds

Roadway Classification	Number of Lanes	Level Of Service				
		A	B	C	D	E
Arterial (Divided)	6	33,900	39,400	45,000	50,600	56,300
Arterial (Divided)	4	22,500	26,300	30,000	33,800	37,500
Arterial (Undivided)	4	15,000	17,500	20,000	22,500	25,000
Collector (Industrial)	2	7,500	8,800	10,000	11,300	12,500
Undivided (Residential)	2	N/A	N/A	N/A	N/A	2,000

2.4 PERFORMANCE CRITERIA

2.4.1 City of Moreno Valley

The City of Moreno Valley has established level of service “D” or better as acceptable LOS for all intersections that are adjacent to freeway on/off ramps and/or adjacent to employment generating land uses. The City of Moreno Valley has established level of service “C” or better as acceptable LOS for all other intersections along the designated street and highway system in the General Plan Traffic/Circulation Element. For the purposes of the project study area, level of service “C” is considered acceptable LOS.

2.5 THRESHOLDS OF SIGNIFICANCE

According to California Environmental Quality Act (CEQA) guidelines, a project is considered to cause a significant impact to a transportation system if it:

- Conflicts with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel.
- Conflicts with an applicable congestion management program (CMP), including, but not limited to level of service standards, travel demand measures, or other standards established by the County Congestion Management Agency for roadways or highways.

Conflicts with adopted policies or programs regarding public transit, bicycle or pedestrian facilities, or otherwise decreases the performance or safety of such facilities.

2.5.1 City of Moreno Valley

The following types of traffic impacts are considered to be “significant” under CEQA:

- When existing traffic conditions exceed the General Plan target LOS.
- When project traffic plus ambient growth plus existing traffic will deteriorate the LOS to below the

target LOS, and impacts cannot be mitigated though project conditions of approval.

- When cumulative traffic exceeds the target LOS, and impacts cannot be mitigated though the TUMF and/or DIF network (or other funding mechanism), project conditions of approval, or other implementation mechanism.

The applicant will participate in the funding or construction of off-site improvements, including traffic signals that are needed to serve cumulative traffic conditions through the payment of the Transportation Uniform Mitigation Fees (TUMF), City of Moreno Valley Development Impact Fees (DIF), or a fair share contribution as directed by the City. These fees are collected as part of a funding mechanism aimed at ensuring that regional highways and arterial expansions keep pace with projected population increases. With regard to California Environmental Quality Act (CEQA) guidelines, the above fees will address the project's fair share toward infrastructure improvements designed to alleviate the cumulative impact.

3.0 EXISTING CONDITIONS

3.1 EXISTING CIRCULATION NETWORK/STUDY AREA CONDITIONS

The characteristics of the roadway system in the vicinity of the proposed project site are described in **Table 4**.

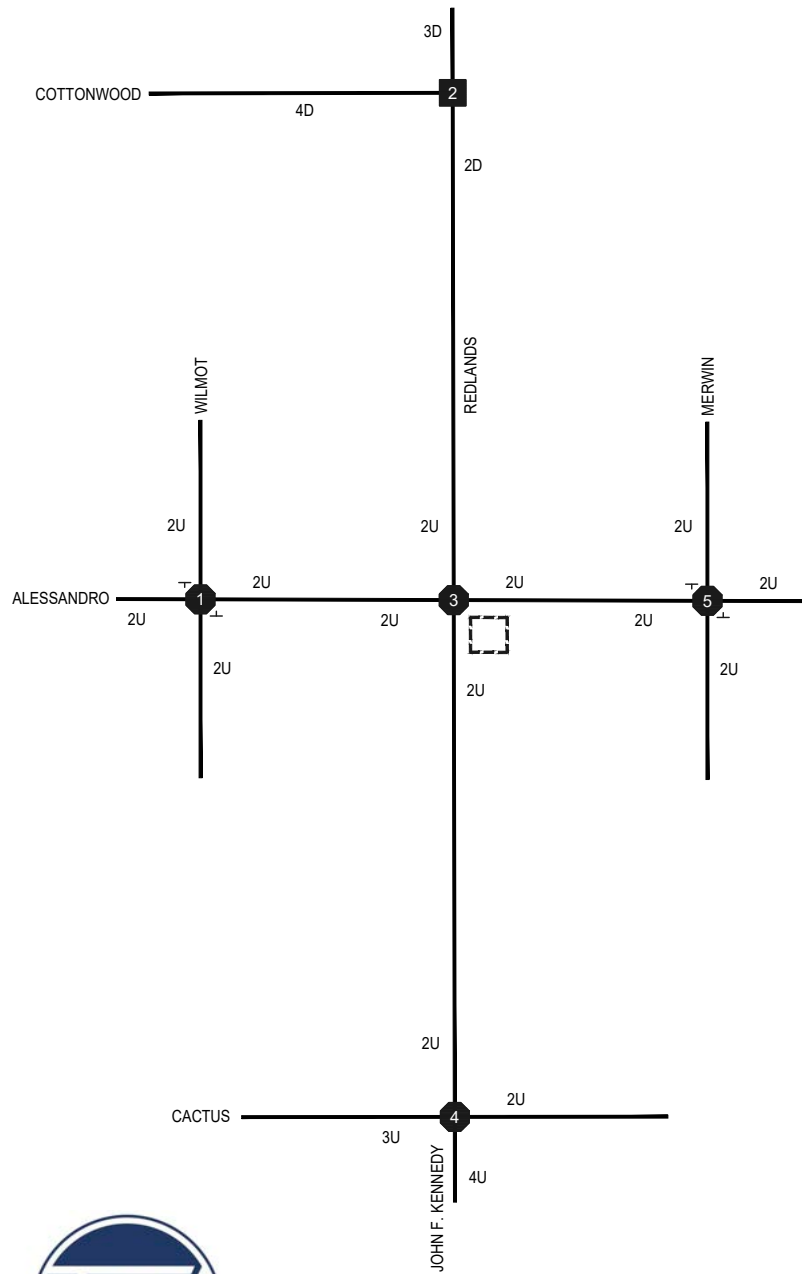
Table 4:
Roadway Characteristics Within Study Area

Roadway	Classification ¹	Jurisdiction	Direction	Existing Travel Lanes	Median Type ²	Speed Limit (mph)	On-Street Parking
Redlands Blvd	Divided Arterial	Moreno Valley	North-South	2-3	NM-RM	50	No
Alessandro Blvd	Divided Major Arterial/Divided Arterial	Moreno Valley	East-West	2-6	NM, TWLTL, RM	40	No
Cottonwood Ave	Minor Arterial	Moreno Valley	East-West	2-4	NM-TWLTL	45	No
Cactus Ave	Minor Arterial	Moreno Valley	East-West	2-4	NM-TWLTL	50	No
Wilmot St	Local Collector	Moreno Valley	North-South	2	NM	25-30	Yes
Merwin St	Local Collector	Moreno Valley	North-South	2	NM	30	Yes

1: Sources: City of Moreno Valley General Plan (2006)

2: TWLTL = Two-Way Left-Turn Lane, RM = Raised Median, NM = No Median.

Exhibit 3 show existing conditions study area intersection and roadway geometry. City of Moreno Valley roadway classifications and cross sections are contained in **Appendix A**.



- Legend:
- Project Site
 - Existing Lane
 - Defacto Lane
 - Signal-Controlled Intersection
 - Stop-Controlled Intersection
 - Cross Street Stop Control
 - 2U 2-Lane Undivided Roadway
 - 2D 2-Lane Divided Roadway
 - 3D 3-Lane Divided Roadway
 - 3U 3-Lane Undivided Roadway
 - 4D 4-Lane Divided Roadway
 - 4U 4-Lane Undivided Roadway

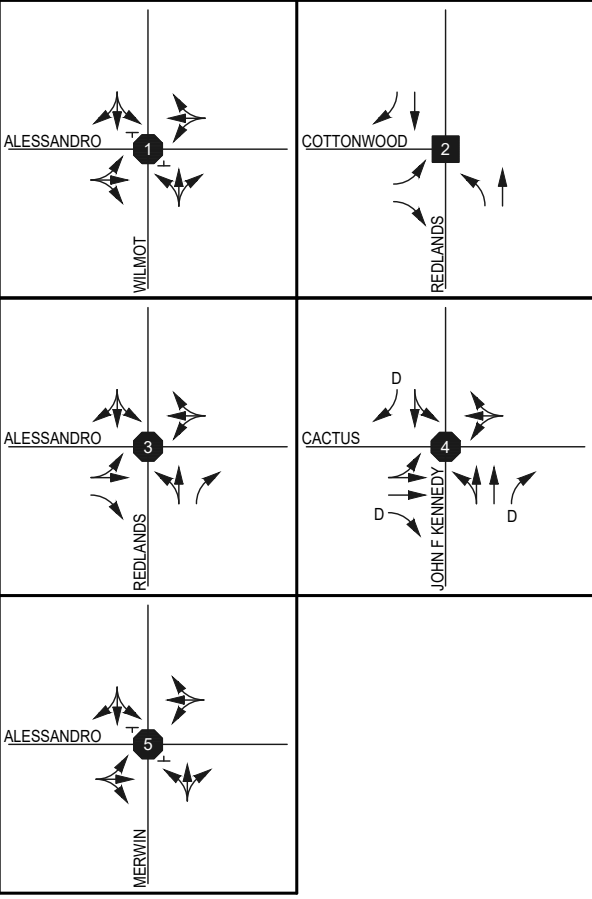


Exhibit 3: Existing Lane Geometry and Intersection Controls

HDI-19-002: Redlands Alessandro Commercial Plaza Traffic Impact Analysis



3.2 CITY OF MORENO VALLEY GENERAL PLAN

The proposed project site is located within the City of Moreno Valley. **Appendix A** contains the current City of Moreno Valley General Plan street classifications and roadway cross sections.

3.3 EXISTING BICYCLE AND PEDESTRIAN FACILITIES

Class II on-street bicycle lanes are planned for the following roadways within the study area:

- Redlands Boulevard north of Cactus Avenue
- Cactus Avenue west of Redlands Boulevard
- Alessandro Boulevard west of Theodore Street

Class III on-street bicycle routes exist on Redlands Blvd/John F. Kennedy Drive south of Cactus Avenue. Class III on-street bicycle lanes are planned for the following roadways within the study area:

- Cottonwood Avenue west of Redlands Boulevard

Pedestrian facilities exist along the east side of Redlands Boulevard along project frontage and extend south to Campbell Avenue. Pedestrian facilities generally do not extend beyond those previously mentioned. There are no marked crosswalks at the intersection of Redlands Boulevard and Alessandro Boulevard. The City of Moreno Valley Bicycle Master Plan is contained in **Appendix A**.

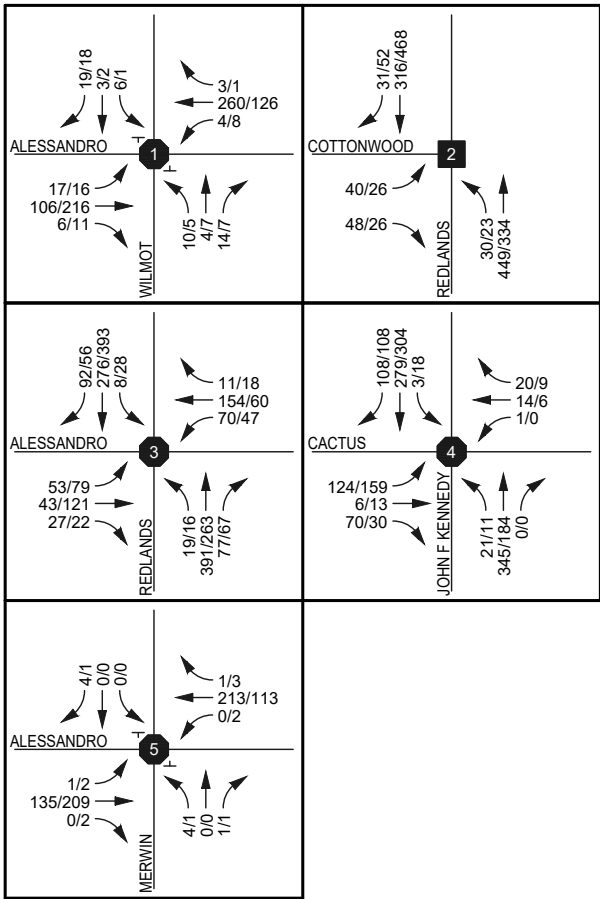
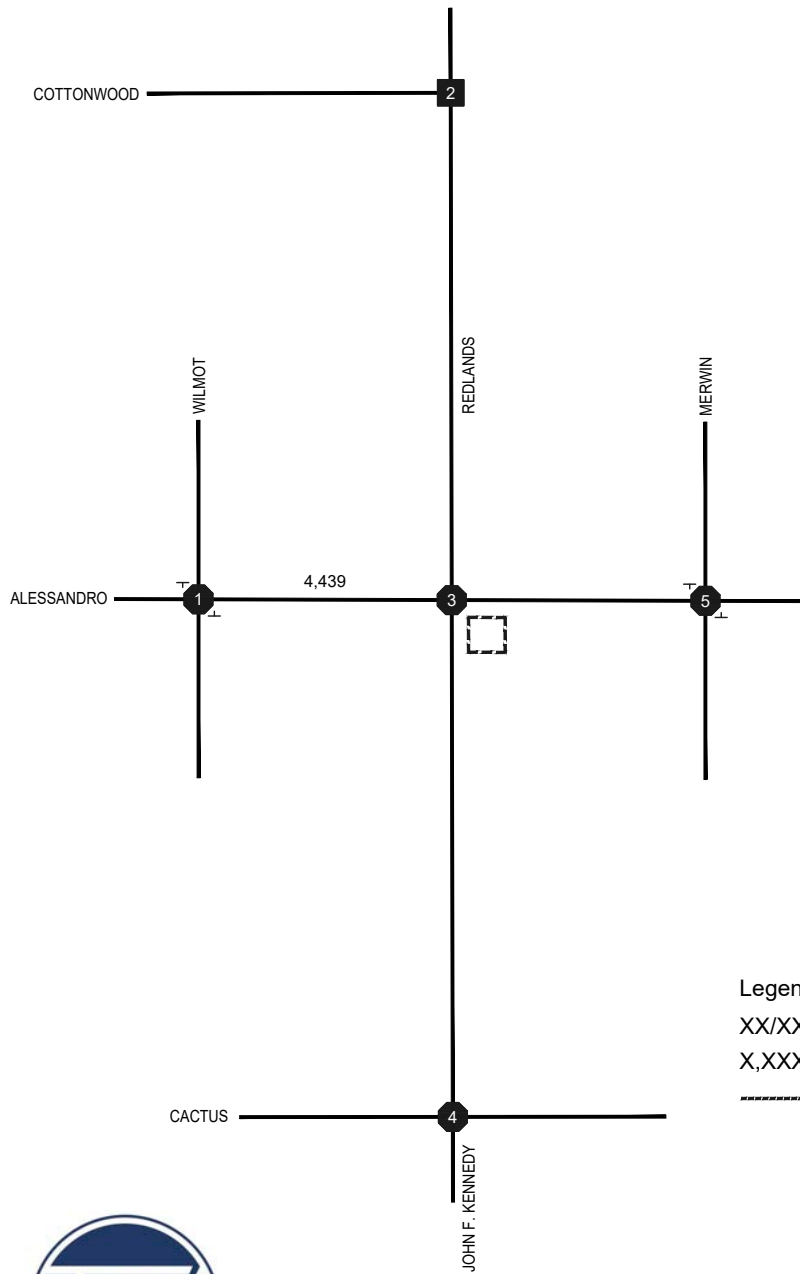
3.4 EXISTING PUBLIC TRANSIT SERVICES

The City of Moreno Valley is served by the Riverside Transit Agency (RTA) which provides local and regional bus service throughout Riverside County. Currently there are no RTA routes running in the vicinity of the proposed project. The nearest transit bus stop is located over one mile away from the project site.

3.5 EXISTING TRAFFIC VOLUMES

To determine the existing operation of the study intersections, AM and PM peak period traffic counts at the study intersections and 24-hour average daily traffic counts at the study roadway segment were collected on Tuesday August 20, 2019. The traffic volumes used in this analysis are from the highest hour within the peak period counted. Detailed traffic count data is provided in **Appendix B**.

Exhibit 4 shows existing AM and PM peak hour volumes at the study intersections and ADT volumes at the study roadway segment.



Legend:
 XX/XX AM/PM Peak Hour Volumes
 X,XXX Average Daily Traffic Volume
 ----- Project Site



Exhibit 4: Existing AM/PM Peak Hour Volumes

HDI-19-002: Redlands Alessandro Commercial Plaza Traffic Impact Analysis



Not to Scale

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET

3.6 EXISTING CONDITIONS INTERSECTION LEVEL OF SERVICE ANALYSIS

Existing conditions AM and PM peak hour intersection analysis is shown in **Table 5**. Calculations are based on the existing geometrics at the study area intersections as shown in **Exhibit 3**. HCM analysis sheets are provided in **Appendix C**.

Table 5:
Intersection Analysis – Existing Conditions

Intersection	Control Type	Peak Hour	Existing Conditions	
			Delay ¹	LOS
#1 - Wilmot St/Alessandro Blvd	TWSC	AM	10.8	B
		PM	11.7	B
#2 - Redlands Blvd/Cottonwood Ave	Signal	AM	6.7	A
		PM	5.4	A
#3 - Redlands Blvd/Alessandro Blvd	AWSC	AM	30.5	D
		PM	28.6	D
#4 - Redlands Blvd/Cactus Ave	AWSC	AM	14.4	B
		PM	12.7	B
#5 - Merwin St/Alessandro Blvd	TWSC	AM	11.0	B
		PM	10.3	B

Note: TWSC = Two-Way Stop-Control, AWSC = All-Way Stop-Control; Delay shown in seconds per vehicle.
1 = Per the Highway Capacity Manual 6th Edition, overall average delay and LOS are shown for signalized.

As shown in **Table 5**, the study intersections are currently operating at an acceptable LOS during the AM and PM peak hours for *existing* conditions with the exception of the following intersection:

- #3 - Redlands Blvd/Alessandro Blvd (LOS D AM/PM Hour).

3.7 EXISTING CONDITIONS ROADWAY SEGMENT LEVEL OF SERVICE ANALYSIS

Table 6 summarizes existing conditions roadway segment analysis based on the LOS “E” capacities provided in the *City of Moreno Valley Traffic Impact Analysis Preparation Guide*, previously summarized in **Table 3**.

Table 6:
Roadway Segment Analysis – Existing Conditions

Roadway Segment	Existing Cross Section	LOS E Capacity	Existing		
			ADT	V/C	LOS
Alessandro Boulevard between Wilmot Street and Redlands Boulevard	2U	18,750	4,439	0.24	A

Note: V/C = volume to capacity ratio. 2U = Two-Lane Undivided roadway.

As shown in **Table 6**, the study roadway segment is currently operating at LOS A, which is acceptable at this location for *existing* conditions.

3.8 EXISTING CONDITIONS SIGNAL WARRANT ANALYSIS

Traffic signal warrants for existing conditions have been prepared based on existing peak hour intersection volumes at the unsignalized study intersections. **Table 7** summarizes the results of the signal warrant analysis. Detailed warrant analysis sheets are contained in **Appendix D**.

Table 7:
Signal Warrant Analysis - Existing Conditions

Intersection	Signal Warrants Met?	
	AM Peak Hour	PM Peak Hour
#1 - Wilmot St/Alessandro Blvd	No	No
#3 - Redlands Blvd/Alessandro Blvd	Yes	Yes
#4 - Redlands Blvd/Cactus Ave	No	No
#5 - Merwin St/Alessandro Blvd	No	No

Peak hour signal warrants are met at the following unsignalized study intersections:

- #3 – Redlands Blvd/Alessandro Blvd (AM/PM Peak Hour).

4.0 PROPOSED PROJECT

4.1 PROJECT DESCRIPTION

The proposed project consists of a 2,000 square foot commercial building, a 2,500 square foot restaurant, and a gas station with 8 vehicle fueling positions. The site is currently zoned as Village Commercial (VC) and classified as Commercial Land Use in the City of Moreno Valley General Plan Land Use Map. The project site is currently partially occupied by an existing market which will remain and is incorporated to the project site plan. The proposed project land use is permitted in the zone and does not require a zone change or General Plan amendment.

Site access is planned via one right-in/right-out driveway on Redlands Boulevard and one right-in/right-out driveway on Alessandro Boulevard.

The proposed project is anticipated to be built and generating trips in 2024. A growth rate of 2% was used to account future traffic volumes.

Exhibit 1 previously showed the proposed project site plan.

4.2 PROJECT TRIP GENERATION

Trip generation represents the amount of traffic, both inbound and outbound, produced by a development. Determining trip generation for a proposed project is based on projecting the amount of traffic that the specific land uses being proposed will produce. Industry standard *Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition, 2017)* trip generation rates were used to determine trip generation of for most of the proposed project land uses.

Table 8 summarizes the projected AM peak hour, PM peak hour and daily trip generation of the proposed project.

Table 8:
Proposed Project AM/PM Peak Hour Trip Generation

Proposed Land Use ¹	Qty	Unit	Daily Trips (ADTs)		AM Peak Hour					PM Peak Hour					Pass By %'s		
			Rate	Volume	Rate	In:Out Split	Volume			Rate	In:Out Split	Volume			AM	PM	Daily
							In	Out	Total			In	Out	Total			
Shopping Center (820)	1.92	TSF	37.75	72.0	0.94	62:38	1.0	1.0	2.0	3.81	48:52	4.0	4.0	8.0	10%	34%	10%
High Turn-Over Restaurant (932)	2.58	TSF	112.18	289.0	9.94	55:45	14.0	12.0	26.0	9.77	62:38	16.0	10.0	26.0	20%	43%	20%
Convenience Market w/ Gas Pumps (853)	8.0	VFP	172.01	1,376.0	10.28	50:50	42.0	41.0	83.0	14.03	50:50	57.0	56.0	113.0	62%	56%	50%
Sub Total				1,737.0			57.0	54.0	111.0			77.0	70.0	147.0			
Pass-By Trips				-753.0			-29.0	-27.0	-56.0			-40.0	-36.0	-76.0			
Net Total				984.0			28.0	27.0	55.0			37.0	34.0	71.0			

¹: Rates from ITE Trip Generation (10th Edition, 2017)

As shown in **Table 8**, the proposed project is projected to generate 111 total AM peak hour trips, 147 total PM peak hour trips and 1,737 total daily trips. After appropriate pass-by trip discounts, the proposed project is projected to generate 55 net AM peak hour trips, 71 net PM peak hour trips, and 984 net daily trips.

4.3 PROJECT TRIP DISTRIBUTION

Projecting trip distribution involves the process of identifying probable destinations and traffic routes that will be utilized by the proposed project's traffic. The potential interaction between the proposed land use and surrounding regional access routes are considered to identify the probable routes onto which project traffic would distribute. The projected trip distribution for the proposed project is based on anticipated travel patterns to and from the project site.

Exhibit 5A and **Exhibit 5B** show the general projected AM and PM trip distribution of proposed project trips, respectively.

4.4 MODAL SPLIT

The traffic reducing potential of public transit, walking and bicycling have not been considered in this analysis since transit facilities in the study area are limited.

4.5 PROJECT TRIP ASSIGNMENT

Exhibit 6 shows the corresponding projected AM/PM peak hour net trip assignment of proposed project trips.

4.6 CUMULATIVE PROJECTS TRAFFIC

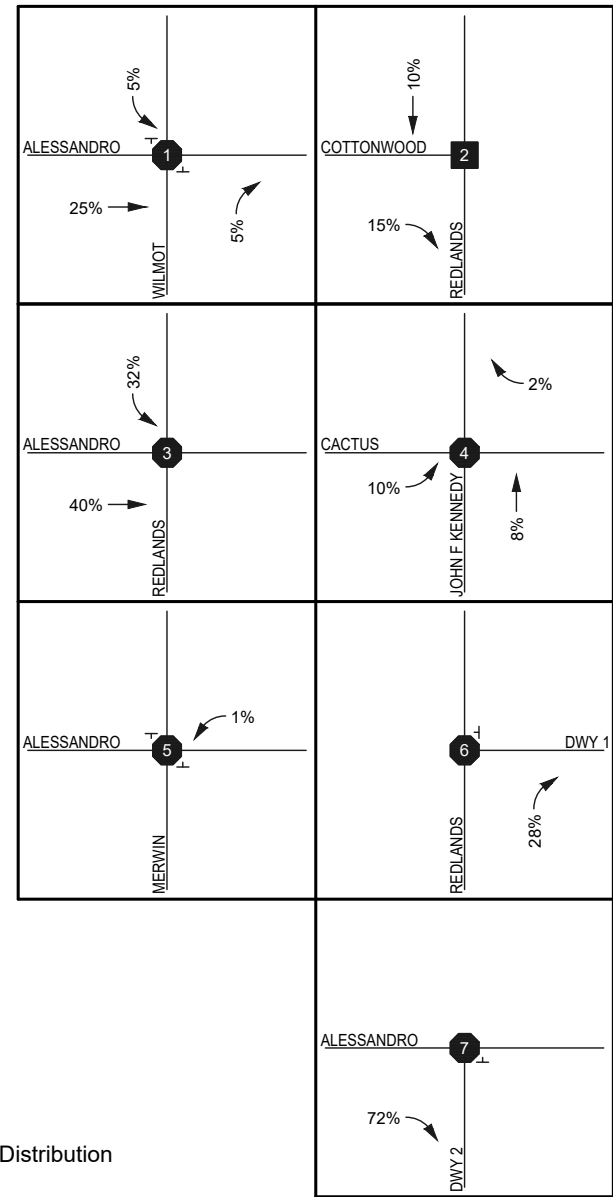
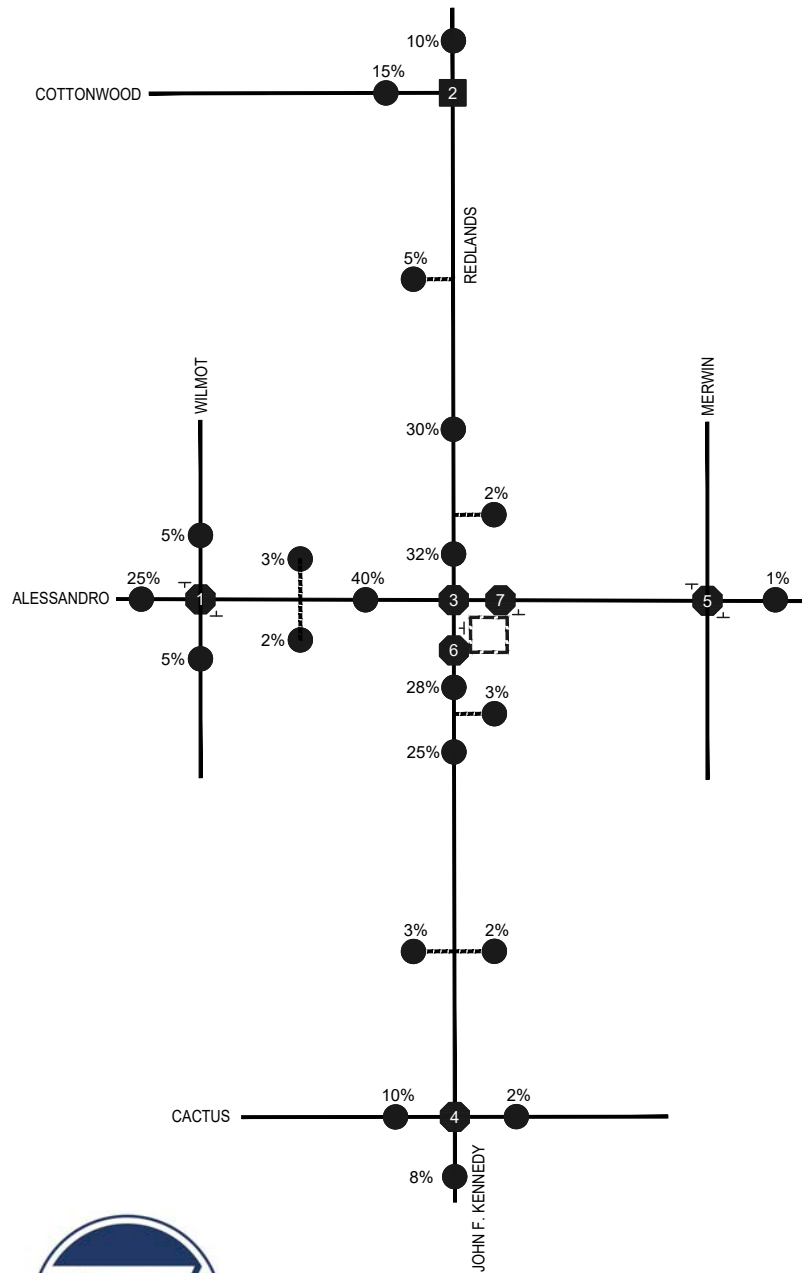
CEQA guidelines require that other reasonably foreseeable development projects which are either approved or are currently being processed in the study area also be included as part of a cumulative analysis scenario. A list of cumulative projects was developed for this analysis through consultation with City of Moreno Valley staff, and obtainment of current development status reports. **Exhibit 7** shows the location of nearby cumulative developments. A summary of the cumulative projects land uses is shown in **Table 9**.

Table 9:
Cumulative Projects List

Project	Land Use	Qty	Units	AM Peak Hour			AM Peak Hour			Daily
				In	Out	Total	In	Out	Total	
1	26th Crop	235.00	DU	43	130	174	147	86	233	2,218
2	Motlagh Family Trust	25.00	DU	5	14	19	16	9	25	236
3	Sid Chan	7.00	DU	1	4	5	4	3	7	66
4	Canterbury	45.00	DU	8	25	33	28	16	45	425
5	Michael De La Torre	6.00	DU	1	3	4	4	2	6	57
6	Hakan Buvan	8.00	DU	1	4	6	5	3	8	76
7	KB Homes	159.00	DU	29	88	118	99	58	157	1,501
Total				88	268	359	303	177	481	4,579

¹ DU = Dwelling Units; TSF = Thousand Square Feet; RM = Rooms

² Source: Institute of Transportation Engineers, Trip Generation Manual, 10th Edition, 2017 (unless otherwise noted)



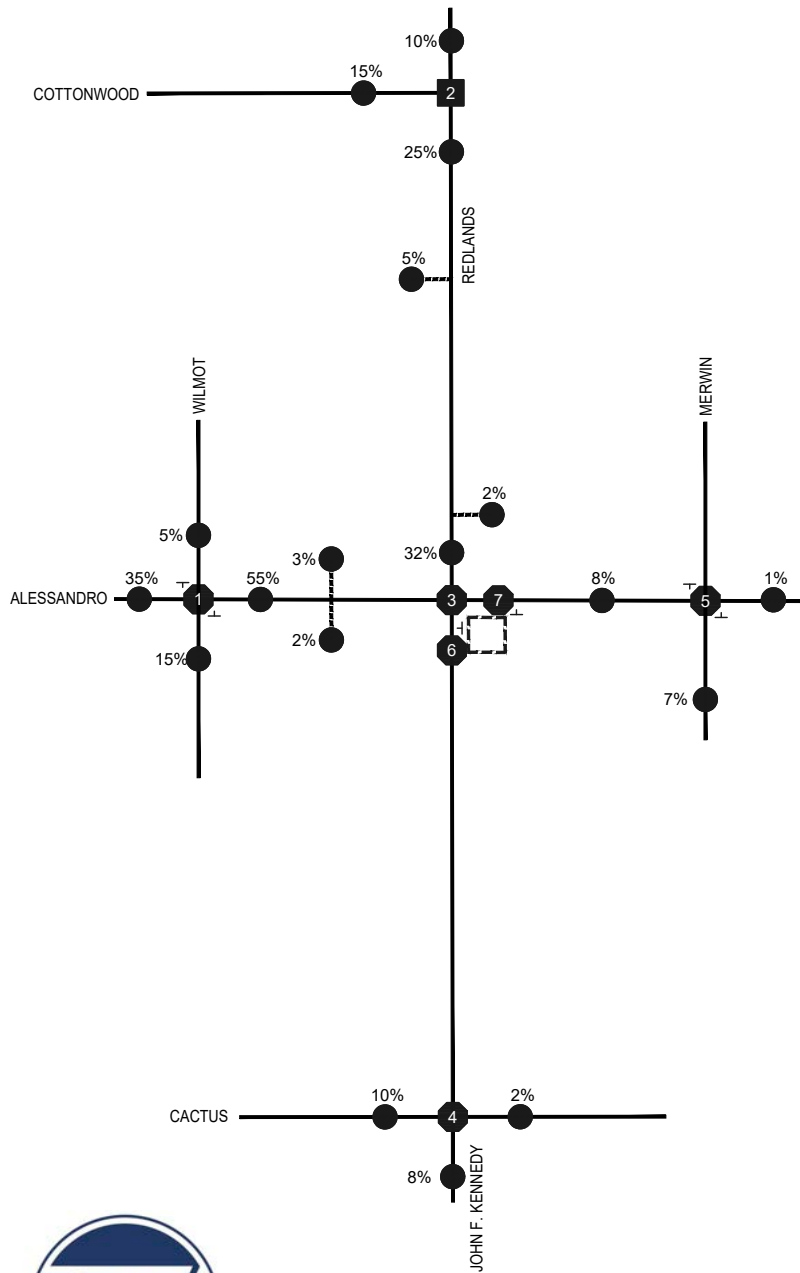
Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET



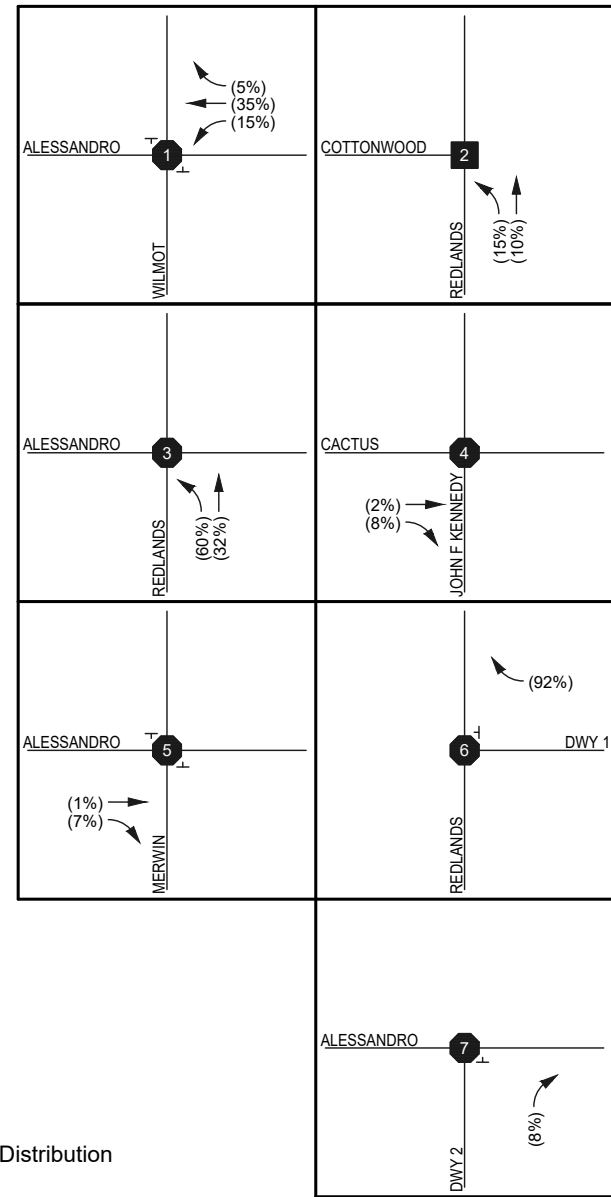
Exhibit 5A: Inbound Trip Distribution at Study Intersections

HDI-19-002: Redlands Alessandro Commercial Plaza Traffic Impact Analysis





Legend:
 XX% Percent Trip Distribution
 ----- Project Site



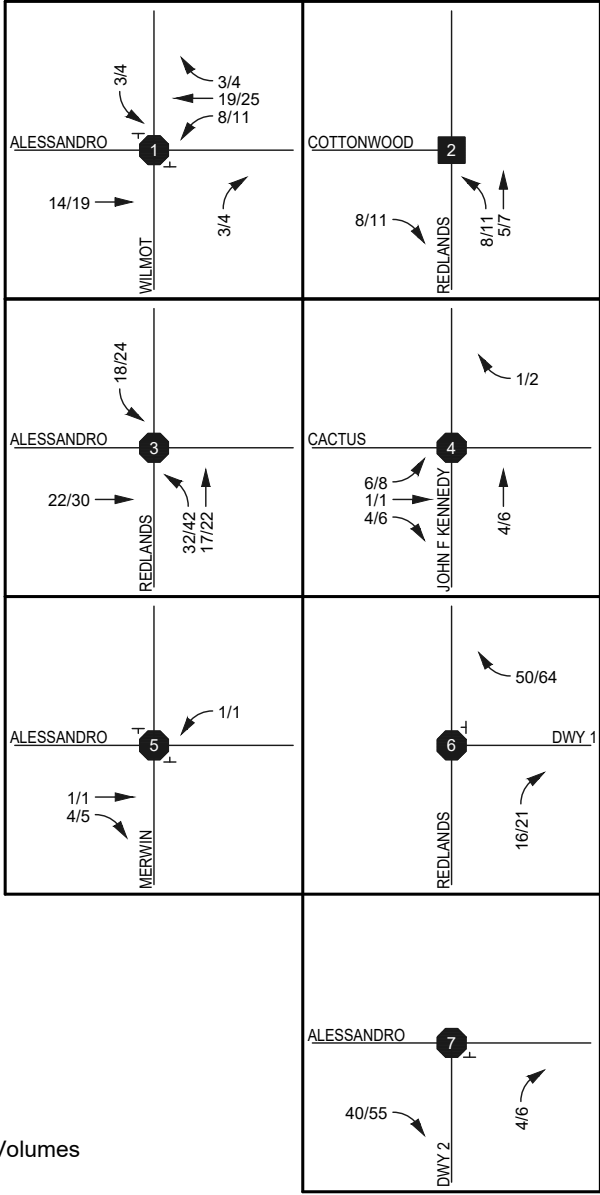
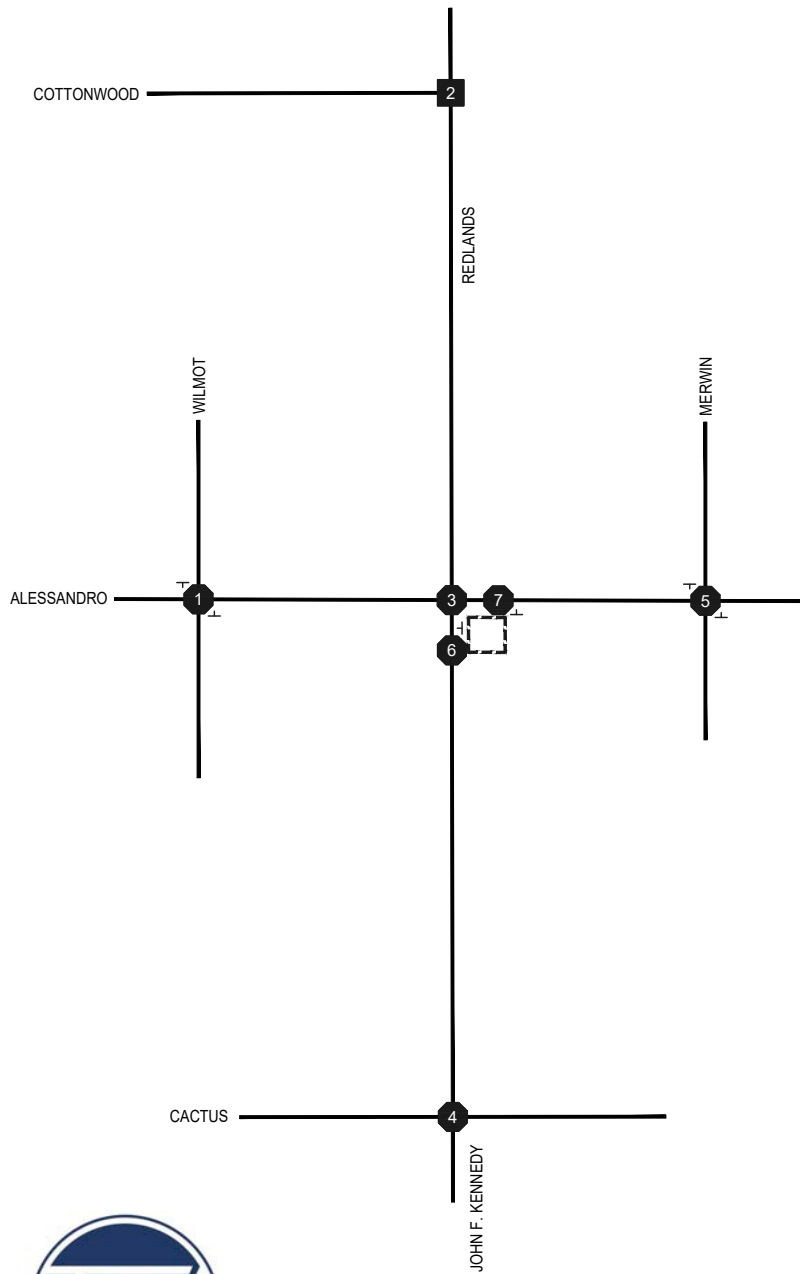
TJW ENGINEERING, INC.

Exhibit 5B: Outbound Trip Distribution at Study Intersections

HDI-19-002: Redlands Alessandro Commercial Plaza Traffic Impact Analysis



Not to Scale



Legend:
 XX/XX AM/PM Peak Hour Volumes
 ----- Project Site

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET



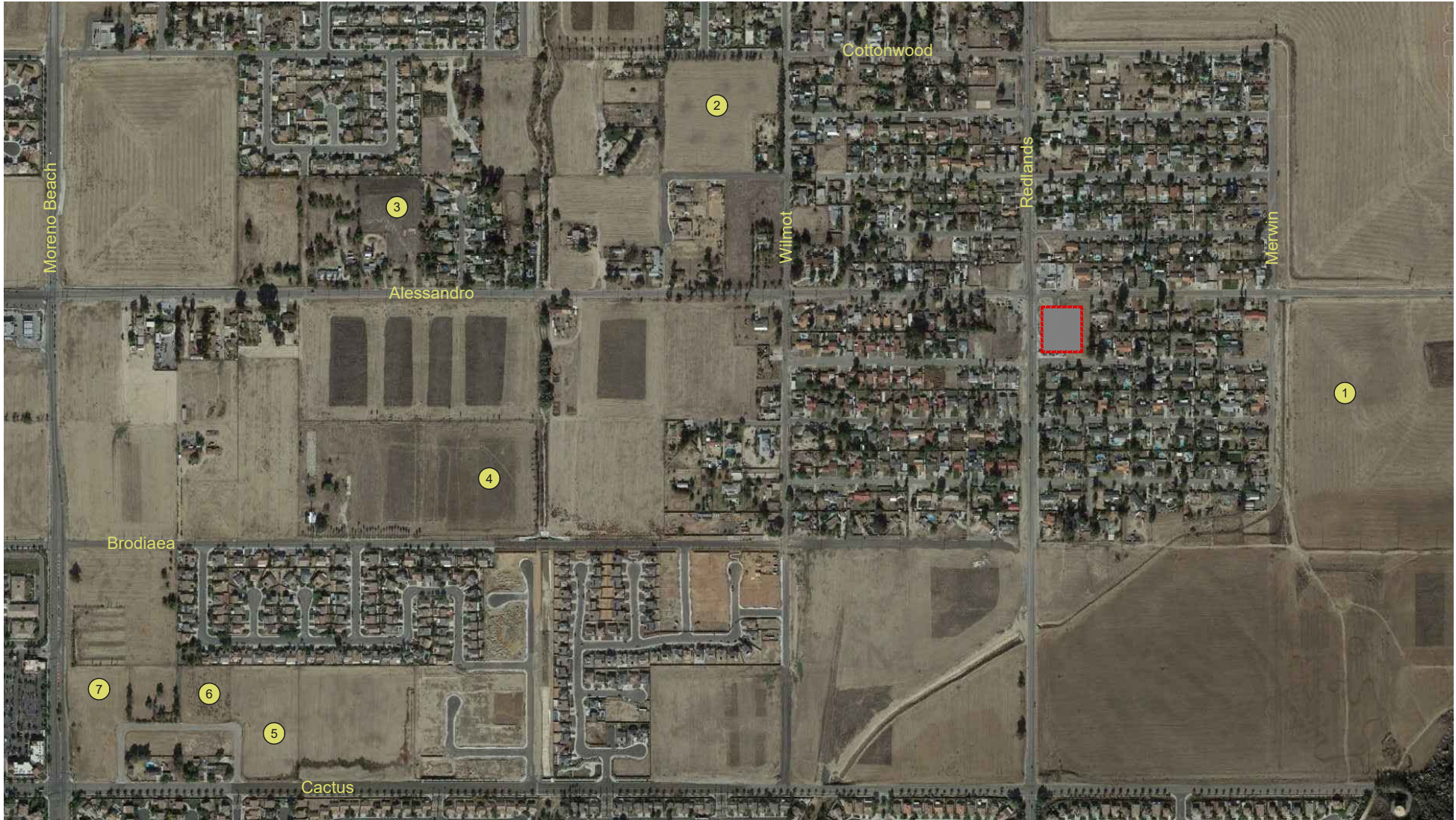
TJW ENGINEERING, INC.

Exhibit 6: Projected Trip Assignment of Proposed Project Trips

HDI-19-002: Redlands Alessandro Commercial Plaza Traffic Impact Analysis



Not to Scale



Legend:
 (X) Approximate Cumulative Project Locations
 [Red Square] Project Site



Exhibit 7: Cumulative Project Map

HDI-19-002: Redlands Alessandro Commercial Plaza Traffic Impact Analysis

TJW ENGINEERING, INC.



Not to Scale

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET

5.0 EXISTING PLUS PROJECT CONDITIONS (EP)

Existing plus project (EP) conditions analysis is intended to identify the project-related impacts on the existing near-term circulation system by comparing *EP* conditions to *existing* conditions. Consistent with CEQA, *EP* analysis is intended to identify direct impacts associated with the development of the proposed project.

5.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for the *existing plus project* scenario are consistent with those previously shown in **Exhibit 3**, with the exception of project driveways and other facilities assumed to be constructed by the proposed project to provide site access.

5.2 EP TRAFFIC VOLUMES

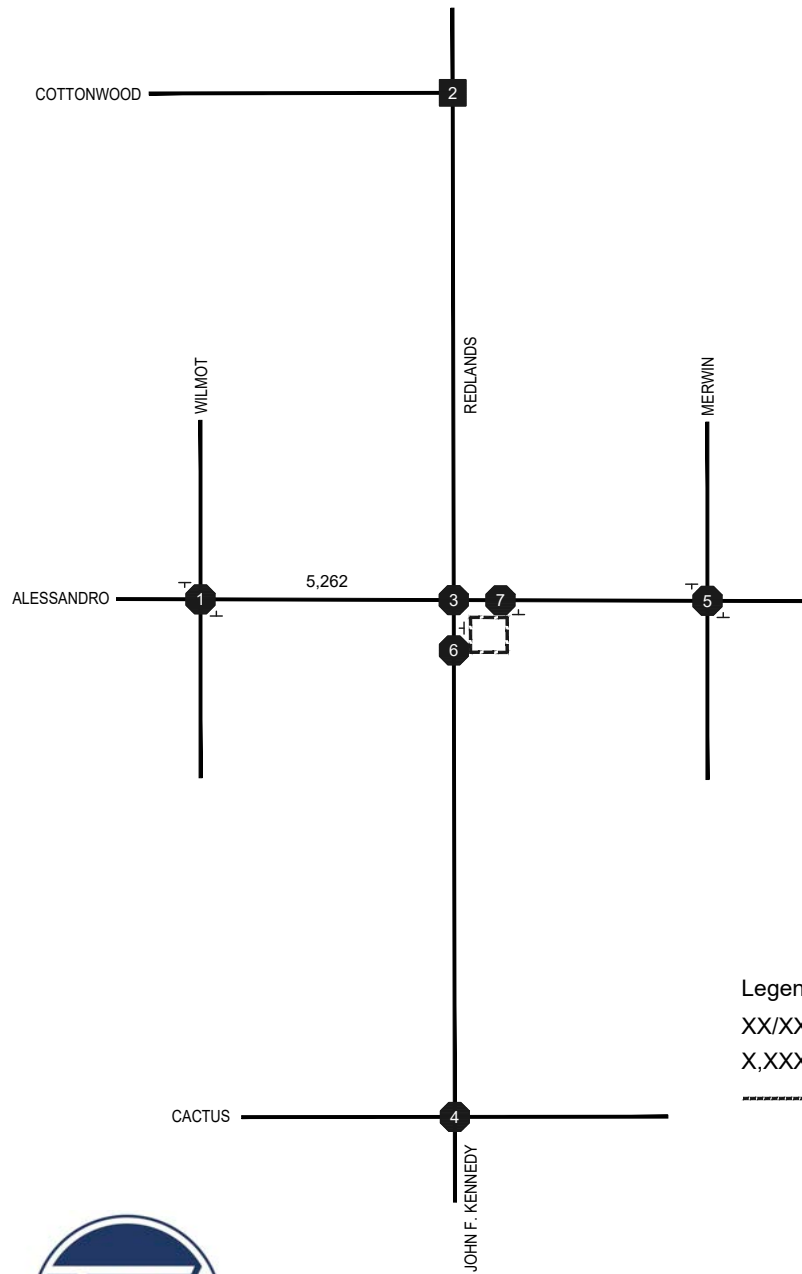
EP volumes include existing traffic plus the addition of the traffic projected to be generated by the proposed project.

EP Volumes = Existing (2019) Counts + Project Traffic

Exhibit 8 shows *EP* AM and PM peak hour volumes at the study intersections.

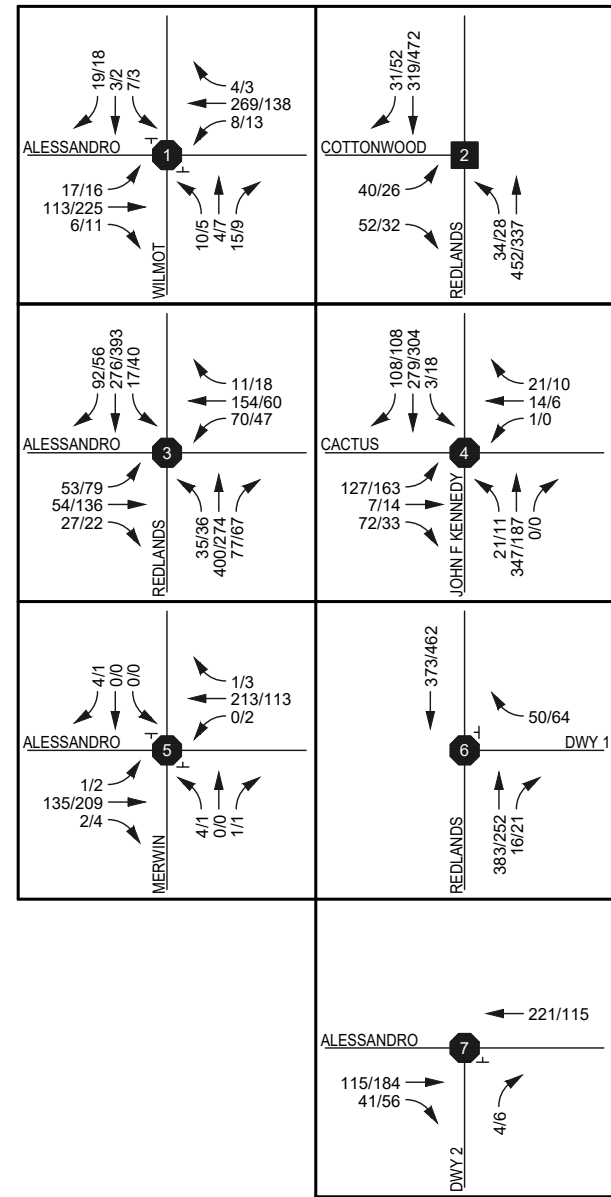
5.3 EP INTERSECTION LEVEL OF SERVICE ANALYSIS

EP conditions AM and PM peak hour intersection analysis is shown in **Table 10**. Calculations are based on the existing geometrics at the study area intersections as shown in **Exhibit 3**. HCM analysis sheets are provided in **Appendix C**.



Legend:

- XX/XX AM/PM Peak Hour Volumes
- X,XXX Average Daily Traffic Volume
- Project Site



TJW ENGINEERING, INC.

Exhibit 8: Existing Plus Project AM/PM Peak Hour Volumes

HDI-19-002: Redlands Alessandro Commercial Plaza Traffic Impact Analysis



Not to Scale

Table 10:
Intersection Analysis – EP Conditions

Intersection	Control Type	Peak Hour	Existing Conditions		EP Conditions			
			Delay ¹	LOS	Delay ¹	LOS	Change	Impact?
#1 - Wilmot St/Alessandro Blvd	TWSC	AM	10.8	B	11.1	B	0.3	No
		PM	11.7	B	11.8	B	0.1	No
#2 - Redlands Blvd/Cottonwood Ave	Signal	AM	6.7	A	6.9	A	0.2	No
		PM	5.4	A	5.8	A	0.4	No
#3 - Redlands Blvd/Alessandro Blvd	AWSC	AM	30.5	D	39.8	E	9.3	Yes
		PM	28.6	D	34.5	D	5.9	Yes
#4 - Redlands Blvd/Cactus Ave	AWSC	AM	14.4	B	14.6	B	0.2	No
		PM	12.7	B	12.9	B	0.2	No
#5 - Merwin St/Alessandro Blvd	TWSC	AM	11.0	B	11.0	B	0.0	No
		PM	10.3	B	10.3	B	0.0	No
#6 - Redlands Blvd/Dwy 1	OWSC	AM	-	-	9.9	A	9.9	No
		PM	-	-	9.5	A	9.5	No
#7 - Dwy 2/Alessandro Blvd	OWSC	AM	-	-	9.0	A	9.0	No
		PM	-	-	9.5	A	9.5	No

Note: AWSC = All-Way Stop-Control, TWSC = Two-Way Stop-Control, OWSC = One-Way Stop Control, Delay shown in seconds per vehicle.

1 = Per the Highway Capacity Manual 6th Edition, overall average delay and LOS are shown for signalized and all-way stop-controlled intersections. For intersections with one-or-two-way stop-control, the delay and LOS for the worst individual movement is shown.

As shown in **Table 10**, the study intersections are projected to continue to operate at an acceptable LOS during the AM and PM peak hours for *EP* conditions with the exception of the following intersection:

- #3 - Redlands Blvd/Alessandro Blvd (LOS E AM/LOS D PM Hour).

5.4 EP CONDITIONS ROADWAY SEGMENT LEVEL OF SERVICE ANALYSIS

Table 11 summarizes *EP* conditions roadway segment analysis based on the LOS “E” capacities provided in the *City of Moreno Valley Traffic Impact Analysis Preparation Guide*, previously summarized in **Table 3**.

Table 11:
Roadway Segment Analysis – EP Conditions

Roadway Segment	EP Cross Section	LOS E Capacity	EP		
			ADT	V/C	LOS
Alessandro Boulevard between Wilmot Street and Redlands Boulevard	2U	18,750	5,262	0.28	A

Note: V/C = volume to capacity ratio. 2U = Two-Lane Undivided roadway.

As shown in **Table 11**, the study roadway segment is projected to operate at LOS A for *EP* conditions which is acceptable at this location.

5.5 EP CONDITIONS SIGNAL WARRANT ANALYSIS

Traffic signal warrants for existing conditions have been prepared based on existing peak hour intersection volumes at the unsignalized study intersections. **Table 12** summarizes the results of the signal warrant analysis. Detailed warrant analysis sheets are contained in **Appendix D**.

Table 12:
Signal Warrant Analysis – EP Conditions

Intersection	Signal Warrants Met?	
	AM Peak Hour	PM Peak Hour
#1 - Wilmot St/Alessandro Blvd	No	No
#3 - Redlands Blvd/Alessandro Blvd	Yes	Yes
#4 - Redlands Blvd/Cactus Ave	No	No
#5 - Merwin St/Alessandro Blvd	No	No

Peak hour signal warrants are met at the following unsignalized study intersections:

- #3 – Redlands Blvd/Alessandro Blvd (AM/PM Peak Hour).

5.6 EP QUEUING ANALYSIS

A queueing analysis was conducted for *EP* conditions to determine 95th percentile queues. **Table 13** shows 95th percentile queue lengths for left and right-turn movements at the study intersections. As shown, all existing storage lengths can adequately accommodate 95th percentile queues. Queueing analysis sheets are contained in **Appendix E**.

Table 13:
Queueing Analysis - EP Conditions

Intersection	Movement	Storage Length (ft)	95 th Percentile Queue Length (ft)	
			AM Peak Hour	PM Peak Hour
#2 - Redlands Blvd/Cottonwood Ave	EBL	200	40	29
	NBL	130	37	31
	SBR	200	10	12
#3 - Redlands Blvd/Alessandro Blvd	EBR	65	25	25
	NBR	135	25	25
#4 - Redlands Blvd/Cactus Ave	EBR	100 ¹	25	25
	SBR	100 ¹	25	25

1 = Defacto right turn lane.

5.7 EP RECOMMENDED IMPROVEMENTS

The following improvements are recommended for *EP* conditions.

EP Recommended Improvement (EP-1): Redlands Blvd/Alessandro Blvd – Improve intersection to include a northbound left turn lane and a southbound left turn lane. Signalize existing intersection to include northbound and southbound protected left turn lanes.

Table 14 shows *EP* level of service at the intersection with the recommended improvements.

Table 14:
Intersection Analysis – EP Conditions with Recommended Improvements

Intersection	Control Type	Peak Hour	Existing Conditions		EP Conditions		EP With Recommended Improvements	
			Delay ¹	LOS	Delay ¹	LOS	Delay ¹	LOS
#3 - Redlands Blvd/Alessandro Blvd	AWSC	AM	30.5	D	39.8	E	11.3	B
		PM	28.6	D	34.5	D	11.3	B

Note: AWSC = All-Way Stop-Control, TWSC = Two-Way Stop Control, OWSC = One-Way Stop Control, Delay shown in seconds per vehicle.
 1 = Per the Highway Capacity Manual 6th Edition, overall average delay and LOS are shown for signalized and all-way stop-controlled intersections. For intersections with one-or-two-way stop-control, the delay and LOS for the worst individual movement is shown.

As shown in **Table 14**, with the recommended improvements, the intersection is projected to operate at an acceptable LOS for improved *EP* conditions.

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

6.0 EXISTING PLUS AMBIENT PLUS CUMULATIVE CONDITIONS (EAC)

Existing plus ambient plus cumulative (EAC) conditions analysis is intended to identify baseline conditions in the near-term without the proposed project.

6.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for the *existing plus ambient plus cumulative* scenario are consistent with those previously shown in **Exhibit 3**.

6.2 EAC TRAFFIC VOLUMES

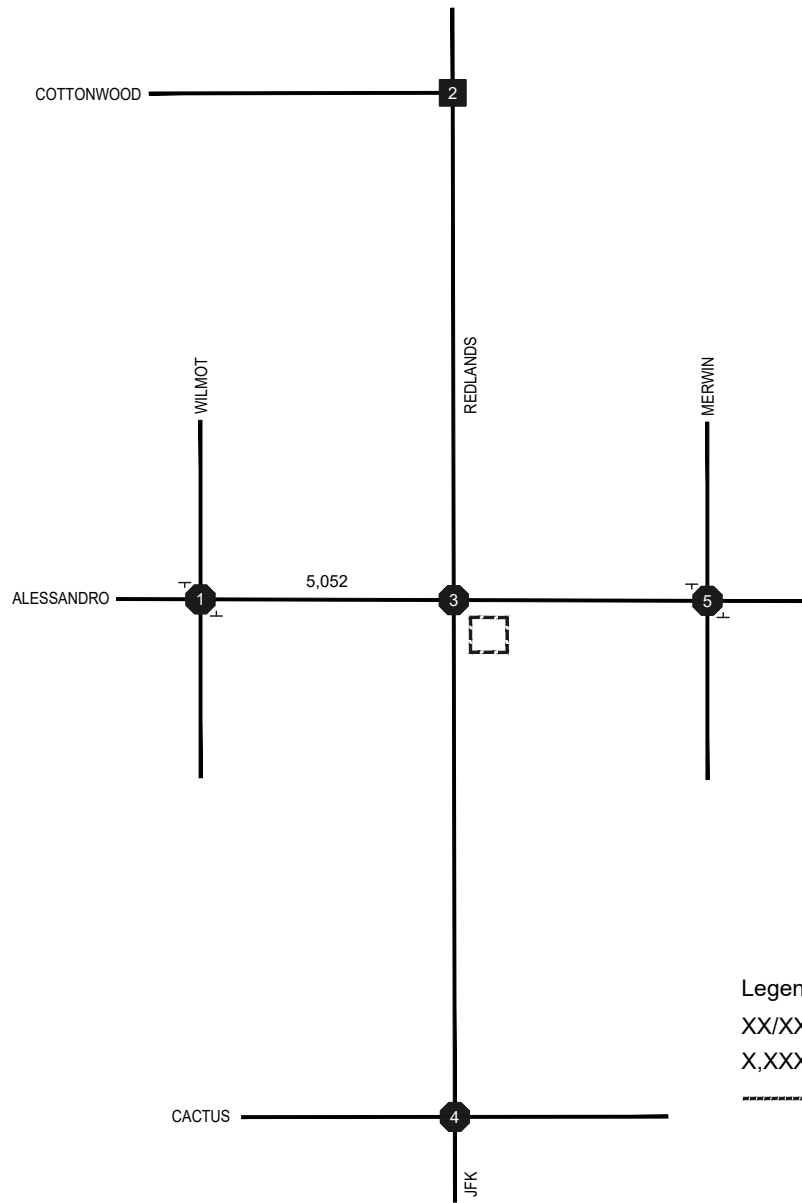
EAC volumes include background traffic plus the addition of the traffic projected to be generated by cumulative projects. Since the proposed project is expected to be built and generating trips in 2024, *EAC* volumes include a growth rate of 2% per year for five years, applied to existing volumes.

$EAC \text{ Volumes} = (\text{Existing (2019) Counts} * 1.02^5) + \text{Cumulative Traffic}$

Exhibit 9 shows *EAC* AM and PM peak hour volumes at the study intersections.

6.3 EAC INTERSECTION LEVEL OF SERVICE ANALYSIS

EAC conditions AM and PM peak hour intersection analysis is shown in **Table 15**. Calculations are based on the existing geometrics at the study area intersections as shown in **Exhibit 3**. HCM analysis sheets are provided in **Appendix C**.



Legend:

- XX/XX AM/PM Peak Hour Volumes
- X,XXX Average Daily Traffic Volume
- Project Site

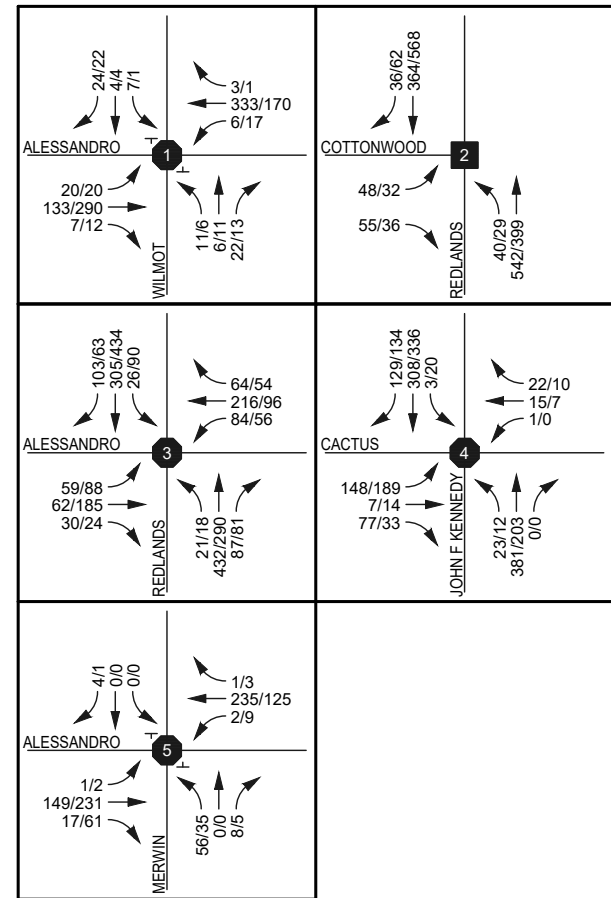


Exhibit 9: Existing Plus Ambient Plus Cumulative Conditions AM/PM Peak Hour Volumes

HDI-19-002: Redlands Alessandro Commercial Plaza Traffic Impact Analysis



Table 15:
Intersection Analysis – EAC Conditions

Intersection	Control Type	Peak Hour	EAC Conditions	
			Delay ¹	LOS
#1 - Wilmot St/Alessandro Blvd	TWSC	AM	11.8	B
		PM	13.3	B
#2 - Redlands Blvd/Cottonwood Ave	Signal	AM	7.2	A
		PM	6.2	A
#3 - Redlands Blvd/Alessandro Blvd	AWSC	AM	84.5	F
		PM	91.5	F
#4 - Redlands Blvd/Cactus Ave	AWSC	AM	17.3	C
		PM	14.6	B
#5 - Merwin St/Alessandro Blvd	TWSC	AM	12.6	B
		PM	12.3	B

Note: AWSC = All-Way Stop-Control, TWSC = Two-Way Stop-Control, Delay shown in seconds per vehicle.

1 = Per the Highway Capacity Manual 6th Edition, overall average delay and LOS are shown for signalized and all-way stop-controlled intersections. For intersections with one-or-two-way stop-control, the delay and LOS for the worst individual movement is shown.

As shown in **Table 15**, the study intersections are projected to continue to operate at an acceptable LOS during the AM and PM peak hours for *EAC* conditions with the exception of the following intersection:

- #3 - Redlands Blvd/Alessandro Blvd (LOS F AM/PM Hour).

6.4 EAC CONDITIONS ROADWAY SEGMENT LEVEL OF SERVICE ANALYSIS

Table 16 summarizes *EAC* conditions roadway segment analysis based on the LOS “E” capacities provided in the *City of Moreno Valley Traffic Impact Analysis Preparation Guide*, previously summarized in **Table 3**.

Table 16:
Roadway Segment Analysis – EAC Conditions

Roadway Segment	EAC Cross Section	LOS E Capacity	EAC		
			ADT	V/C	LOS
Alessandro Boulevard between Wilmot Street and Redlands Boulevard	2U	18,750	5,052	0.27	A

Note: V/C = volume to capacity ratio. 2U = Two-Lane Undivided roadway.

As shown in **Table 16**, the study roadway segment is projected to operate at LOS C for *EAC* conditions which is acceptable at this location.

6.5 EAC CONDITIONS SIGNAL WARRANT ANALYSIS

Traffic signal warrants for existing conditions have been prepared based on existing peak hour intersection volumes at the unsignalized study intersections. **Table 17** summarizes the results of the signal warrant analysis. Detailed warrant analysis sheets are contained in **Appendix D**.

Table 17:
Signal Warrant Analysis - EAC Conditions

Intersection	Signal Warrants Met?	
	AM Peak Hour	PM Peak Hour
#1 - Wilmot St/Alessandro Blvd	No	No
#3 - Redlands Blvd/Alessandro Blvd	Yes	Yes
#4 - Redlands Blvd/Cactus Ave	Yes	No
#5 - Merwin St/Alessandro Blvd	No	No

Peak hour signal warrants are met at the following unsignalized study intersections:

- #3 – Redlands Blvd/Alessandro Blvd (AM/PM Peak Hour);and
- #4 – Redlands Blvd/Alessandro Blvd (AM Peak Hour).

7.0 EXISTING PLUS AMBIENT PLUS CUMULATIVE PLUS PROJECT CONDITIONS

Existing plus ambient plus cumulative plus project conditions (EACP) conditions analysis is intended to identify the project-related cumulative impacts on the planned circulation system.

7.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for the *EACP* scenario are consistent with those previously shown in **Exhibit 3** and do not assume recommended improvements identified in the *EACP* scenario.

7.2 EACP TRAFFIC VOLUMES

EACP volumes include background traffic plus the addition of the traffic projected to be generated by the proposed project and traffic projected to be generated by cumulative developments in the vicinity of the proposed project. Cumulative developments are projects which are in various stages of planning, entitlement and construction. Since the proposed project is expected to be built and generating trips in 2024, *EACP* volumes include an ambient growth rate of 2% per year for five year, applied to existing volumes.

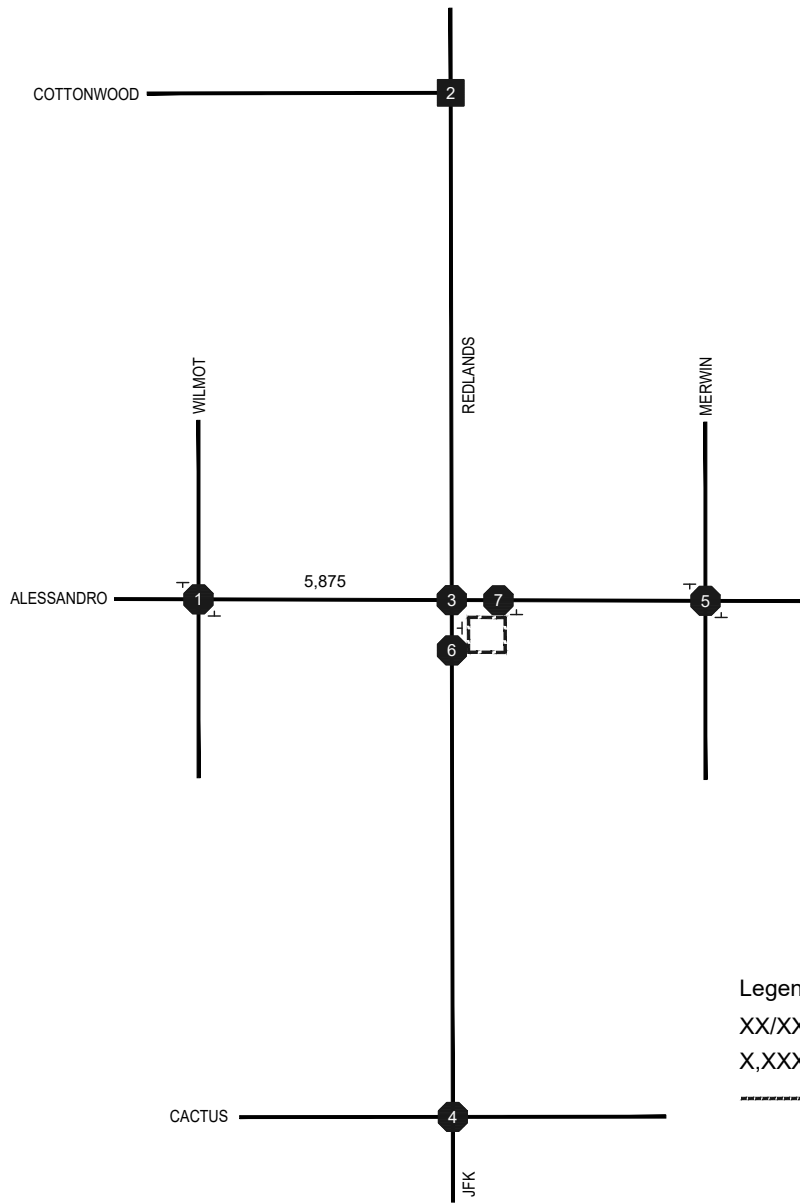
EACP Volumes = (Existing (2019) Counts * 1.02⁵) + Cumulative Projects Traffic + Project Traffic

The cumulative projects were previously discussed in *Section 4.6 Cumulative Projects Traffic*.

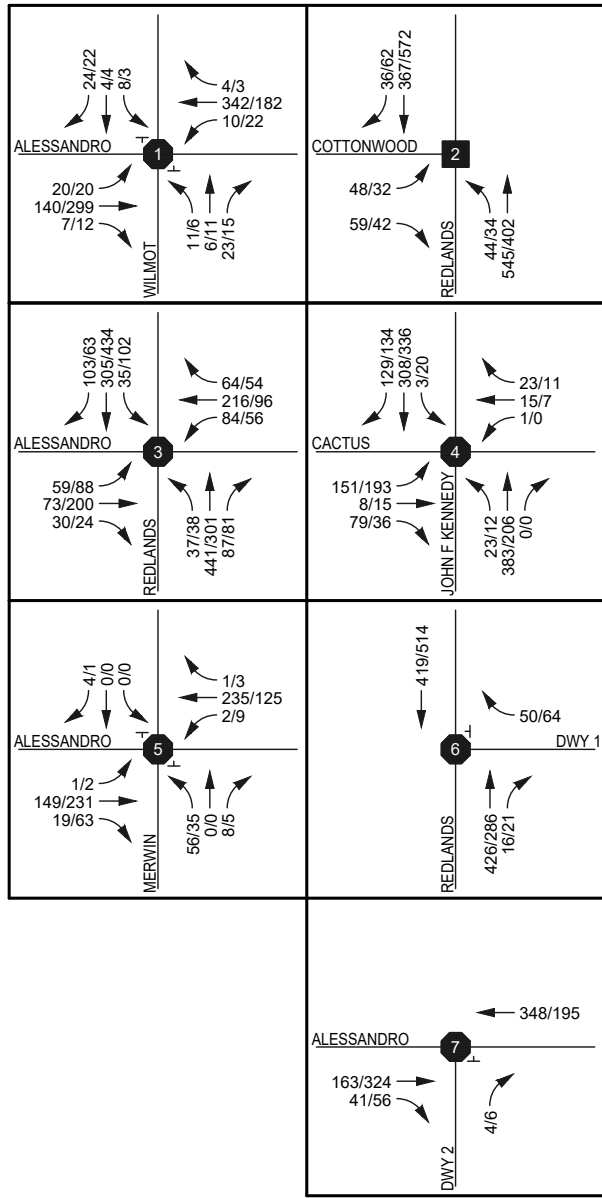
Exhibit 10 shows *EACP* AM and PM peak hour volumes at the study intersections.

7.3 EACP CONDITIONS INTERSECTION LEVEL OF SERVICE ANALYSIS

EACP conditions AM and PM peak hour intersection analysis is shown in **Table 18**. HCM analysis sheets are provided in **Appendix C**.



Legend:
 XX/XX AM/PM Peak Hour Volumes
 X,XXX Average Daily Traffic Volume
 ----- Project Site



Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET



Exhibit 10: Existing Plus Ambient Plus Cumulative (2024) Plus Project Conditions AM/PM Peak Hour Volumes

HDI-19-002: Redlands Alessandro Commercial Plaza Traffic Impact Analysis



Table 18:
Intersection Analysis – EACP Conditions

Intersection	Control Type	Peak Hour	EAC Conditions		EACP Conditions			
			Delay ¹	LOS	Delay ¹	LOS	Change	Impact?
#1 - Wilmot St/Alessandro Blvd	TWSC	AM	11.8	B	12.1	B	0.8	No
		PM	13.3	B	13.6	B	0.6	No
#2 - Redlands Blvd/Cottonwood Ave	Signal	AM	7.2	A	7.4	A	0.5	No
		PM	6.2	A	6.6	A	0.8	No
#3 - Redlands Blvd/Alessandro Blvd	AWSC	AM	84.5	F	99.2	F	29.1	Yes
		PM	91.5	F	105.3	F	30.7	Yes
#4 - Redlands Blvd/Cactus Ave	AWSC	AM	17.3	C	17.5	C	0.3	No
		PM	14.6	B	14.8	C	0.3	No
#5 - Merwin St/Alessandro Blvd	TWSC	AM	12.6	B	12.6	B	0.1	No
		PM	12.3	B	12.3	B	0.0	No
#6 - Redlands Blvd/Dwy 1	OWSC	AM	-	-	10.1	B	10.1	No
		PM	-	-	9.6	A	9.7	No
#7 - Dwy 2/Alessandro Blvd	OWSC	AM	-	-	9.3	A	9.4	No
		PM	-	-	10.5	B	10.7	No

Note: AWSC = All-Way Stop-Control, TWSC = Two-Way Stop-Control, OWSC = One-Way Stop Control, Delay shown in seconds per vehicle.

1 = Per the Highway Capacity Manual 6th Edition, overall average delay and LOS are shown for signalized and all-way stop-controlled intersections. For intersections with one-or-two-way stop-control, the delay and LOS for the worst individual movement is shown.

As shown in **Table 18**, the study intersections are projected to continue to operate at an acceptable LOS during the AM and PM peak hours for *EACP* conditions with the exception of the following intersection:

- #3 - Redlands Blvd/Alessandro Blvd (LOS F AM/PM Hour).

7.4 EACP CONDITIONS ROADWAY SEGMENT LEVEL OF SERVICE ANALYSIS

Table 19 summarizes *EAC* conditions roadway segment analysis based on the LOS “E” capacities provided in the *City of Moreno Valley Traffic Impact Analysis Preparation Guide*, previously summarized in **Table 3**.

Table 19:
Roadway Segment Analysis – EACP Conditions

Roadway Segment	EACP Cross Section	LOS E Capacity	EACP		
			ADT	V/C	LOS
Alessandro Boulevard between Wilmot Street and Redlands Boulevard	2U	18,750	5,875	0.31	A

Note: V/C = volume to capacity ratio. 2U = Two-Lane Undivided roadway

As shown in **Table 19**, the study roadway segment is projected to operate at LOS A for *EACP* conditions which is acceptable at this location.

7.5 EACP CONDITIONS SIGNAL WARRANT ANALYSIS

Traffic signal warrants for existing conditions have been prepared based on existing peak hour intersection volumes at the unsignalized study intersections. **Table 20** summarizes the results of the signal warrant analysis. Detailed warrant analysis sheets are contained in **Appendix D**.

Table 20:
Signal Warrant Analysis - EACP Conditions

Intersection	Signal Warrants Met?	
	AM Peak Hour	PM Peak Hour
#1 - Wilmot St/Alessandro Blvd	No	No
#3 - Redlands Blvd/Alessandro Blvd	Yes	Yes
#4 - Redlands Blvd/Cactus Ave	Yes	No
#5 - Merwin St/Alessandro Blvd	No	No

Peak hour signal warrants are met at the following unsignalized study intersections:

- #3 – Redlands Blvd/Alessandro Blvd (AM/PM Peak Hour); and
- #4 – Redlands Blvd/Alessandro Blvd (PM Peak Hour).

7.6 EACP QUEUING ANALYSIS

A queuing analysis was conducted for *EACP* conditions to determine 95th percentile queues. **Table 21** shows 95th percentile queue lengths for left and right-turn movements at the study intersections. As shown, all existing storage lengths can adequately accommodate 95th percentile queues. Queuing analysis sheets are contained in **Appendix E**.

Table 21:
Queuing Analysis - EACP Conditions

Intersection	Movement	Storage Length (ft)	95 th Percentile Queue Length (ft)	
			AM Peak Hour	PM Peak Hour
#2 - Redlands Blvd/Cottonwood Ave	EBL	200	46	34
	NBL	130	44	35
	SBR	200	11	13
#3 - Redlands Blvd/Alessandro Blvd	EBR	65	25	25
	NBR	135	25	25
#4 - Redlands Blvd/Cactus Ave	EBR	100 ¹	25	25
	SBR	100 ¹	25	25

1 = Defacto right turn lane.

7.7 EACP RECOMMENDED IMPROVEMENTS

The following improvements are recommended for *EACP* conditions.

EACP Recommended Improvement (EACP-1): Redlands Blvd/Alessandro Blvd – Improve intersection to include a northbound left turn lane and a southbound left turn lane. Signalize existing intersection to include northbound and southbound protected left turn lanes.

Table 22 shows *EACP* level of service at the intersection with the recommended improvements.

Table 22:
Intersection Analysis – EACP Conditions with Recommended Improvements

Intersection	Control Type	Peak Hour	EAC Conditions		EACP Conditions		EACP With Recommended Improvements	
			Delay ¹	LOS	Delay ¹	LOS	Delay ¹	LOS
#3 - Redlands Blvd/Alessandro Blvd	AWSC	AM	84.5	F	99.2	F	14.2	B
		PM	91.5	F	105.3	F	14.0	B

Note: AWSC = All-Way Stop-Control, TWSC = Two-Way Stop Control, OWSC = One-Way Stop Control, Delay shown in seconds per vehicle.
 1 = Per the Highway Capacity Manual 6th Edition, overall average delay and LOS are shown for signalized and all-way stop-controlled intersections. For intersections with one-or-two-way stop-control, the delay and LOS for the worst individual movement is shown.

As shown in **Table 22**, with the recommended improvements, the intersection is projected to operate at an acceptable LOS for improved *EACP* conditions.

8.0 LOCAL AND REGIONAL FUNDING MECHANISMS

The applicant will participate in the funding or construction of off-site improvements, including traffic signals that are needed to serve cumulative traffic conditions through the payment of the Transportation Uniform Mitigation Fees (TUMF), City of Moreno Valley Development Impact Fees (DIF), or a fair share contribution as directed by the City. These fees are collected as part of a funding mechanism aimed at ensuring that regional highways and arterial expansions keep pace with projected population increases. With regard to California Environmental Quality Act (CEQA) guidelines, the above fees will address the project's fair share toward infrastructure improvements designed to alleviate the cumulative impact.

8.1 TRANSPORTATION UNIFORM MITIGATION FEE (TUMF) PROGRAM

The TUMF program is administered by the Western Riverside Council of Governments (WRCOG) based upon a regional Nexus Study completed in early 2002 and updated in 2005, 2009, 2015 and 2017 to address major changes in right of way acquisition and improvement cost factors. The TUMF program identifies network backbone and local roadways that are needed to accommodate growth through 2035. The regional program was put into place to ensure that developments pay their fair share and that funding is in place for the construction of facilities needed to maintain an acceptable level of service for the transportation system. The TUMF is a regional mitigation fee program and is imposed and implemented in every jurisdiction in Western Riverside County.

TUMF fees are imposed on new residential, industrial and commercial development through application of the TUMF fee ordinance and fees are collected at the building or occupancy permit phase. The current fee for retail use is \$7.50 per square foot.

The proposed project will participate in the cost of off-site improvements through payment of TUMF fees based on the current fees at the time of construction of the proposed project.

8.2 CITY OF MORENO VALLEY DEVELOPMENT IMPACT FEE (DIF) PROGRAM

The proposed project is located within the City of Moreno Valley and will therefore be subject to the City's Development Impact Fees (DIF) and a fair share contribution to project impacts.

The proposed project will participate in the cost of off-site improvements through payment of City DIF fees based on the current fees at the time of construction of the proposed project.

8.3 FAIR SHARE CALCULATIONS

The project's contribution to the aforementioned development impact fee programs or as a fair share contribution towards a cumulatively impacted facility not found to be covered by a pre-existing fee program should be considered sufficient to address the project's fair share towards infrastructure improvements designed to alleviate cumulative project impacts. **Table 23** calculates the proposed project's fair share percentage at impacted intersections.

Table 23:
Fair Share Calculations

Intersection	Existing AM&PM Peak Hour Volume (A)	EACP AM&PM Peak Hour Volume (B)	Project AM&PM Peak Hour Volume (C)	Fair Share (C) / (B-A)
#3 - Redlands Blvd/Alessandro Blvd	2391	3071	103	15.15%

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Appendices

APPENDIX A

SCOPING AGREEMENT AND CITY OF MORENO VALLEY GENERAL PLAN ROADWAY
CLASSIFICATIONS AND CROSS SECTIONS



SCOPING AGREEMENT FOR TRAFFIC IMPACT ANALYSIS

Date: July 29, 2019

This letter acknowledges the City of Moreno Valley Transportation Engineering Division requirements for the traffic impact analysis of the following project.

Case No.	PEN19-0057 0058 0059 0060	
Project Name:	Redlands Alessandro Commercial Plaza	
Project Address:	14058 Redlands Boulevard, southeast corner of Alessandro Blvd and Redlands Blvd	
Project Description:	2,000 square feet commercial building, 2,500 square feet restaurant, 8-vehicle fueling position gas station	
Name:	<u>Consultant</u> TJW Engineering, Inc. Attn: David Chew	<u>Developer</u> Heady Design, Inc. Attn: Harry Heady
Address:	6 Venture Suite 225 Irvine, CA 92618	7365 Carnelian St Suite 233 Rancho Cucamonga, CA 91730
Telephone:	(949) 878-3509	

I. Background

The proposed project is located at 14058 Redlands Boulevard on the southeast corner of Alessandro Blvd and Redlands Blvd. The proposed project would consist of adding the following uses to the already existing *Farm Market*:

- 8 vehicle fueling position gas station;
- 2,000 square feet commercial use; and
- 2,500 square feet restaurant use.

The proposed project is anticipated to be built in one phase.

II. Trip Geographic Distribution and Assignment*

***See attached trip distribution diagram**

III. Site Trip Generation Forecast

- A. Trip generation rate source: Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition, 2017) for the following land uses:
- Land Use 944 - Gasoline/Service Station
 - Land Use 820 - Shopping Center
 - Land Use 932 - High-Turnover (Sit-Down) Restaurant
- B. AM Peak: 7:00-9:00 AM (based upon existing 24-hour traffic counts)
- C. PM Peak: 4:00-6:00 PM (based upon existing 24-hour traffic counts)
- D. Intersection and link acceptable Level of Service “D” for some intersections and links and Level of Service “C” for others based upon the current City policy. (Use Highway Capacity Manual - 6th Edition - operations procedures; parameters per County of Riverside Traffic Impact Analysis Guidelines.)
- E. No credit is being applied to the existing land use (Farm Market). Existing traffic is assumed to be included in the existing volumes to be collected.

Proposed Use Rates*

Gasoline/Service Station (per vehicle fueling position):

Daily: 172.01 AM: 10.28 PM: 14.03

Shopping Center (per TSF):

Daily: 37.75 AM: 0.94 PM: 3.81

High-Turnover (Sit-Down) Restaurant (per TSF):

Daily: 112.18 AM: 9.94 PM: 7.37

Internal Trip Allowance: Yes _____ No Percentage _____

Pass-by Trip Allowance: Yes _____ No Percentage _____

Proposed Land Use ¹	Qty	Unit	Daily Trips (ADTs)		AM Peak Hour					PM Peak Hour				
			Rate	Volume	Rate	In:Out Split	Volume			Rate	In:Out Split	Volume		
							In	Out	Total			In	Out	Total
Gasoline/Service Station (944)	8.0	VFP	172.01	1,376	10.28	50:50	42	42	83	14.03	50:50	57	57	113
Shopping Center (820)	2.0	TSF	37.75	76	0.94	62:38	1	1	2	3.81	48:52	4	4	8
High-Turnover Restaurant (932)	2.5	TSF	112.18	280	9.94	55:45	14	11	25	9.77	62:38	16	10	25
Total				1,732			56	54	110			76	70	146

* **Source:** Rates from ITE Trip Generation (10th Edition, 2017)

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

IV. Specific Project Issues to be Analyzed

- A. The focus of this traffic study will be on addressing the adequacy of site access and identifying specific near-term and future circulation improvements required in the study area to maintain acceptable peak hour and daily levels of service (LOS).
- B. The traffic study shall address the project traffic impacts at all study intersections listed in Section VI and provide appropriate mitigation measures if applicable. Peak-hour traffic signal warrants shall be evaluated for all intersections that are not currently signalized.
- C. The traffic study shall include a section that discusses the difference in trip generation between the previous proposed or existing use and the proposed project if applicable.
- D. Using Synchro software, the traffic study shall provide a Queuing Analysis section to determine the 95th percentile queues and the minimum requirement of storage length for right and left-turn movements at all studied intersections based on forecasted E+P (V.C), Opening Year + Project (V.E) and GP Buildout (V.E if applicable) traffic volumes.

V. Study of Horizon Years

- A. Existing (2019)
- B. Existing (2019) + Project
- C. Existing + Ambient (existing to opening year***, assume growth rate of 2% per year) + Cumulative (2024)
- D. Existing + Ambient + Cumulative + Project (2024)

***Opening year should have five (5) year minimum horizon

VI. Facilities to be Studied

- A. Intersections
 - 1. Wilmot Street / Alessandro Boulevard
 - 2. Redlands Boulevard / Cottonwood Avenue
 - 3. Redlands Boulevard / Alessandro Boulevard
 - 4. Cactus Avenue / Redlands Boulevard-John F. Kennedy Drive
 - 5. Merwin Street / Alessandro Boulevard
- B. Roadway Segments
 - 1. Alessandro Boulevard between Redlands Boulevard and Wilmot Street

VII. Deliverables

- A. Draft traffic impact study (2 copies + pdf file on a CD or USB drive)
- B. Final traffic impact study (4 copies + pdf file on a CD or USB drive)

All draft and final traffic impact studies shall be delivered with the appropriate review fee to the Permit Technician, Land Development Division, Moreno Valley City Hall, and 14177 Frederick Street, Moreno Valley, CA 92552. Please contact the Land Development Division at 951-413-3110 prior to the delivery of the traffic study.

A signed copy of this Scoping Agreement must be included in the submitted draft and final traffic impact studies.

If you have any questions regarding this *Scoping Agreement*, please contact Eric Lewis at (951) 413-3140.

Recommended By:



David Chew, PTP
TJW Engineering, Inc.

Approved By:



Eric Lewis, P.E., T.E.
City Traffic Engineer

NOTE: This scoping agreement was reviewed and approved based on the information submitted by *TJW Engineering, Inc.* on 07/29/2019. *TJW Engineering, Inc.* and the project applicant acknowledge that any changes to the project (zoning, project phasing, size, type of use, number or location of access points, etc.) after 07/29/2019 may require this scoping agreement to be revised and resubmitted for review and approval by the City of Moreno Valley.

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

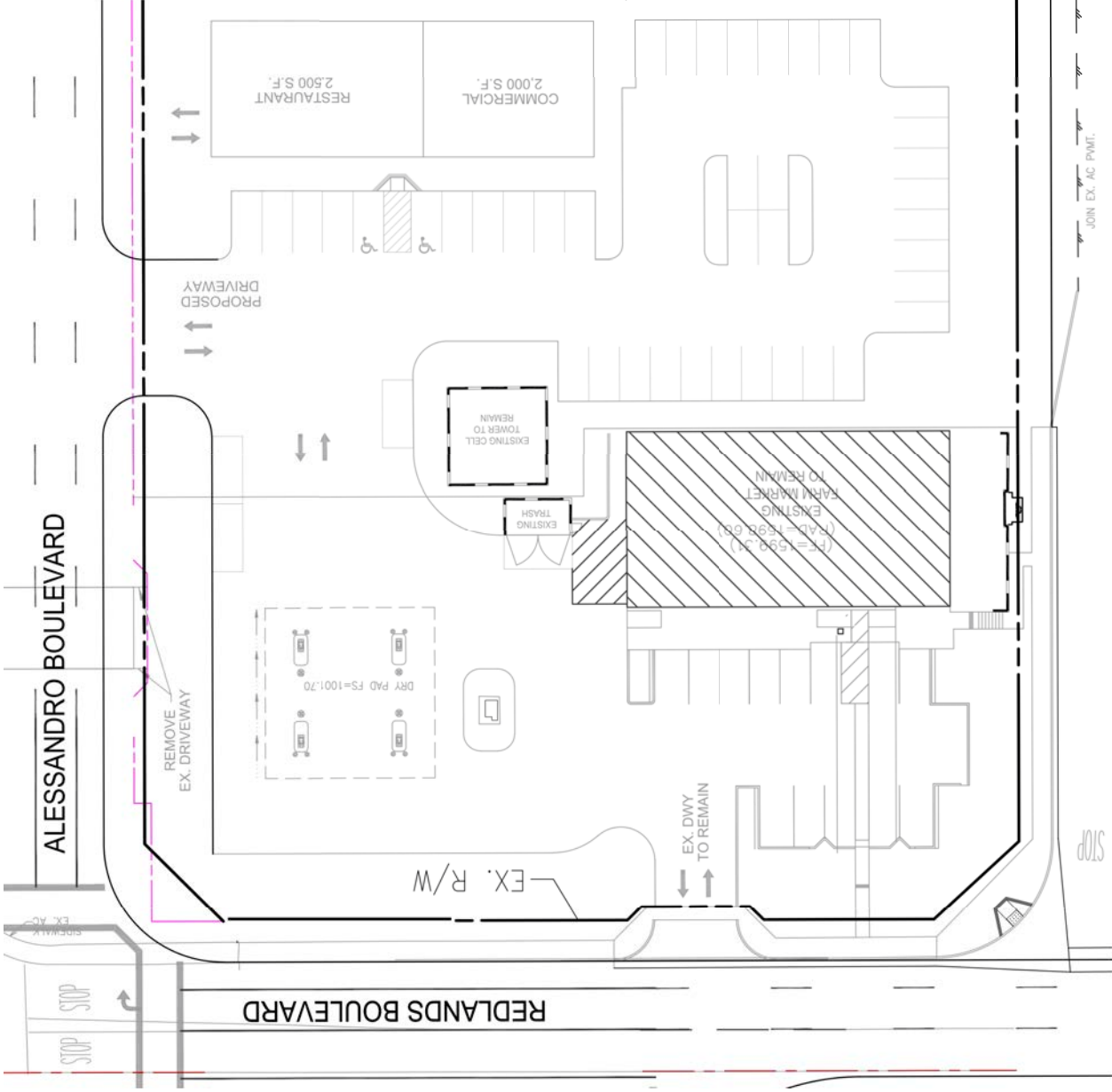


Exhibit 1: Proposed Project Site Plan

HDI-19-002: Redlands Alessandro Commercial Plaza Traffic Impact Analysis

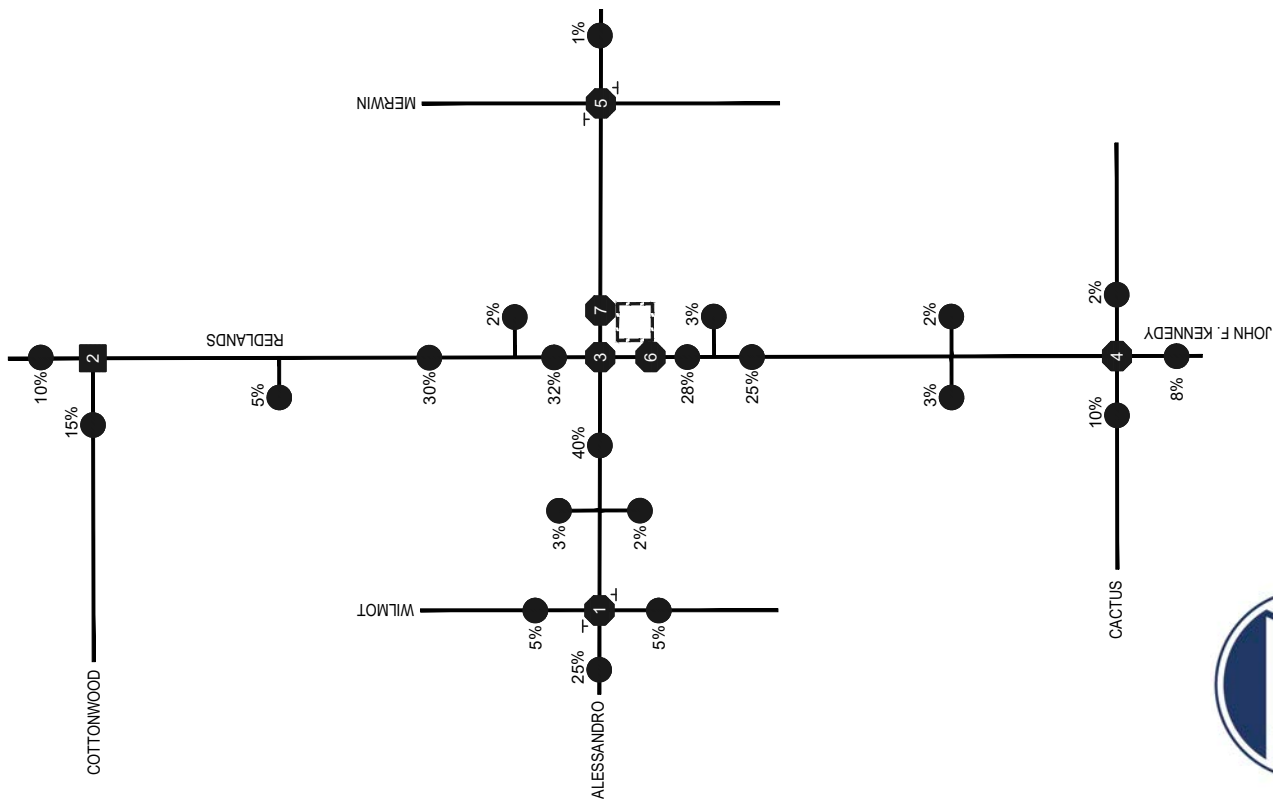
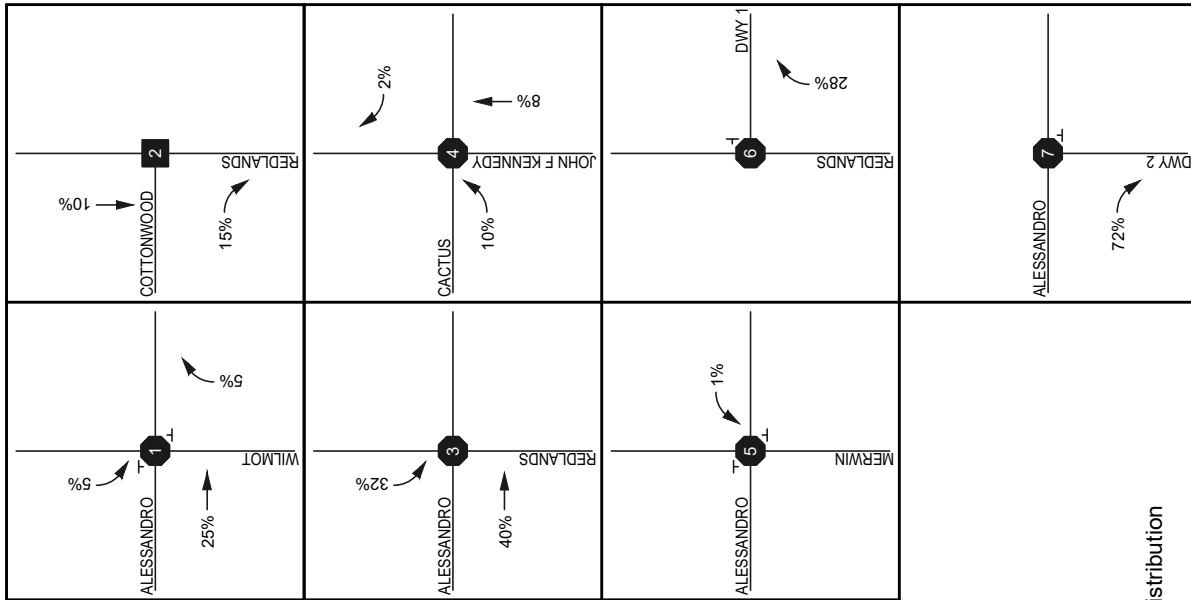


Not to Scale



TJW ENGINEERING, INC.

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)



Legend:
 XX% Percent Trip Distribution
 ----- Project Site

Exhibit 2A: Inbound Trip Distribution at Study Intersections

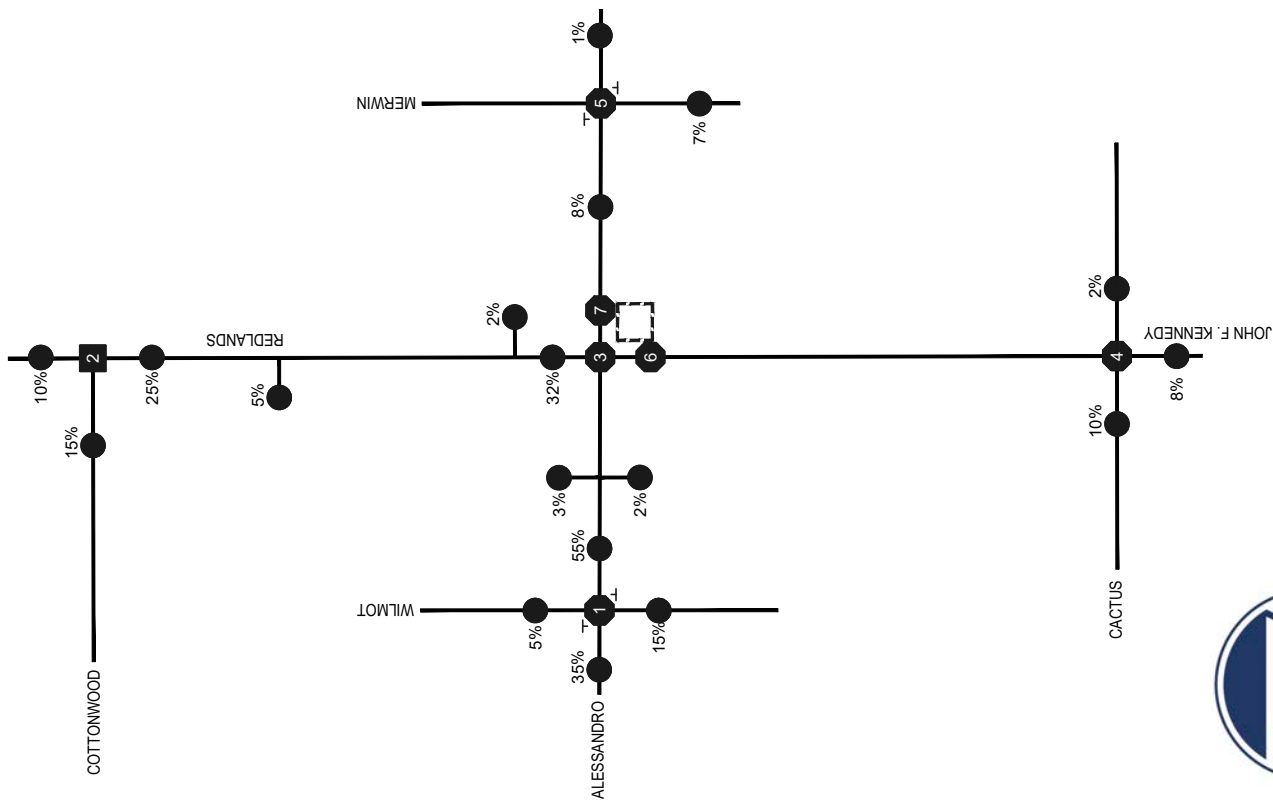
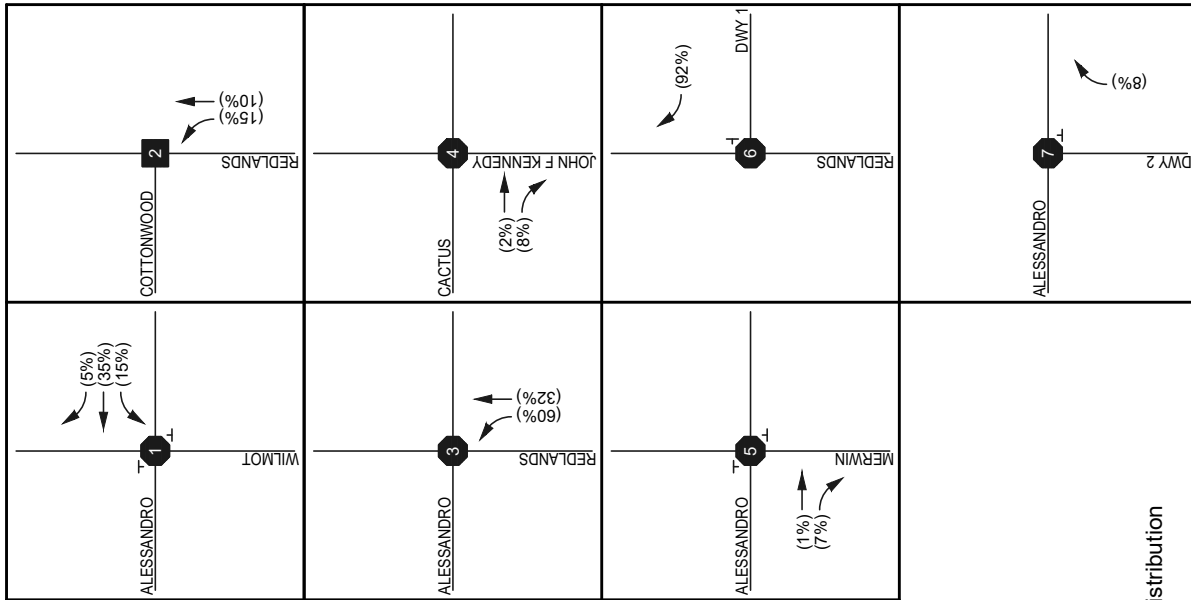
HDI-19-002: Redlands Alessandro Commercial Plaza Traffic Impact Analysis



TJW ENGINEERING, INC.



Not to Scale



Legend:
 XX% Percent Trip Distribution
 --- Project Site

Exhibit 2B: Outbound Trip Distribution at Study Intersections

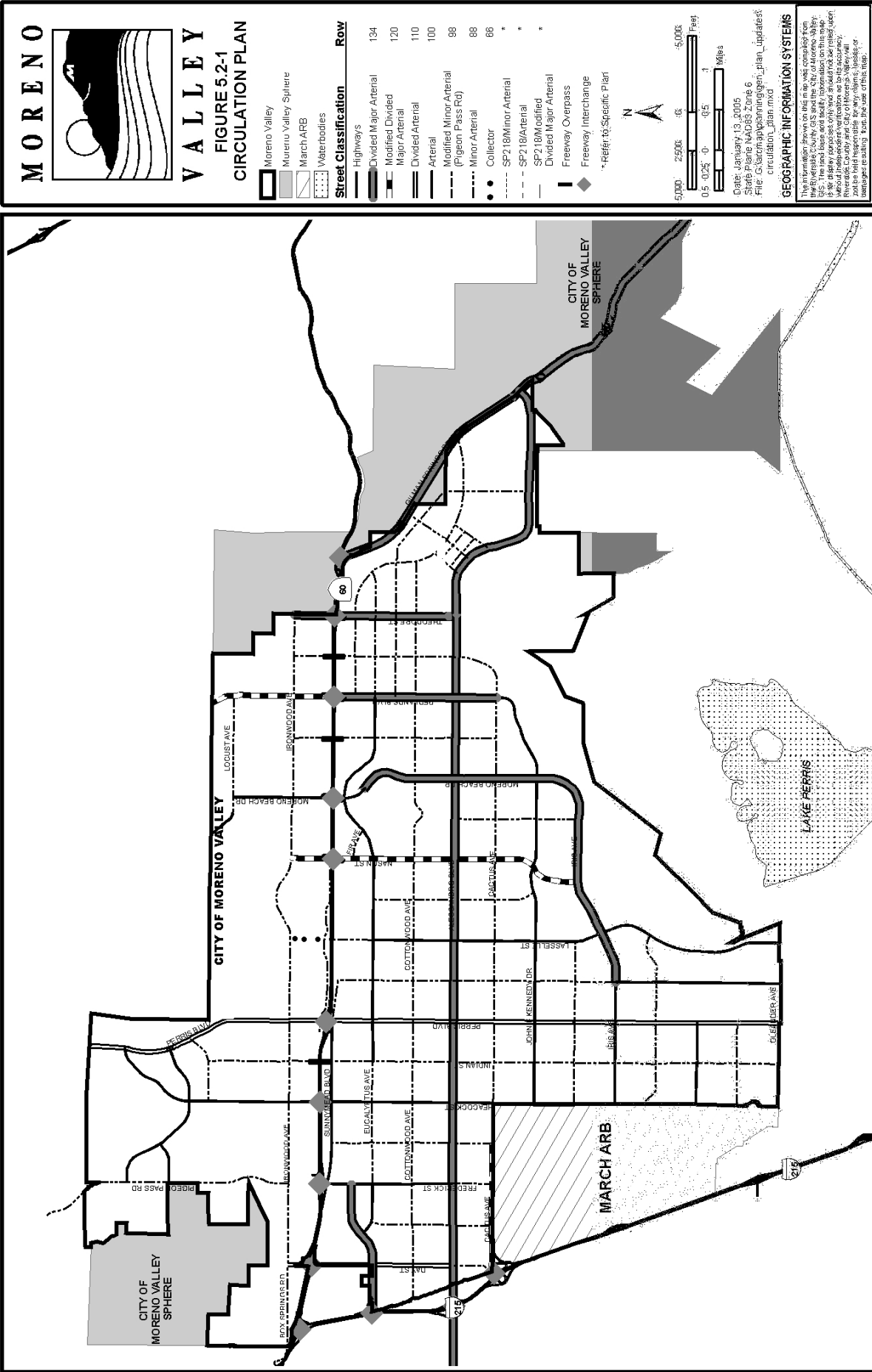
HDI-19-002: Redlands Alessandro Commercial Plaza Traffic Impact Analysis



Not to Scale

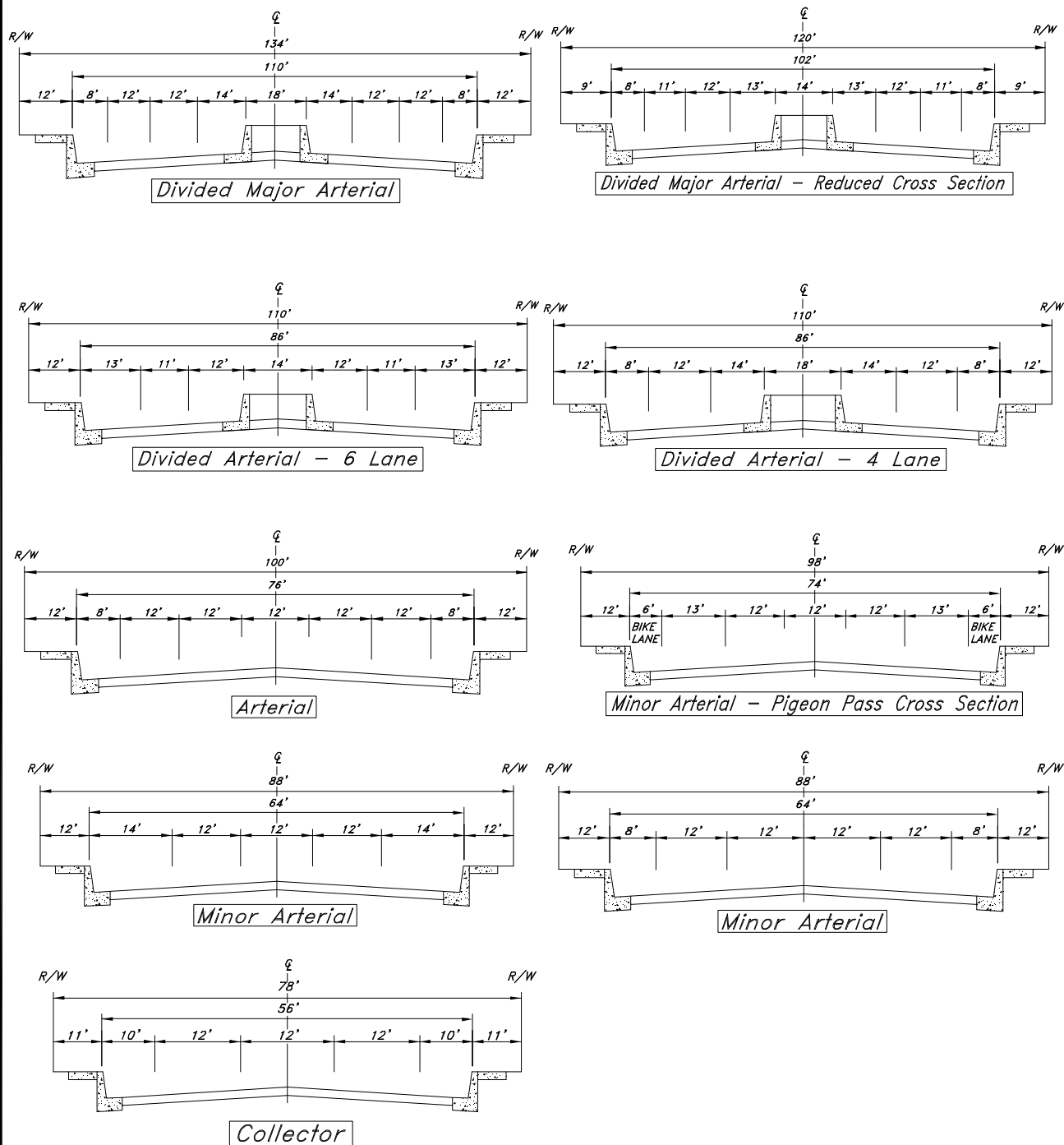


TJW ENGINEERING, INC.



PROPOSED CITY OF MORENO VALLEY GENERAL PLAN ROADWAY CROSS-SECTIONS

Figure 5.2-2

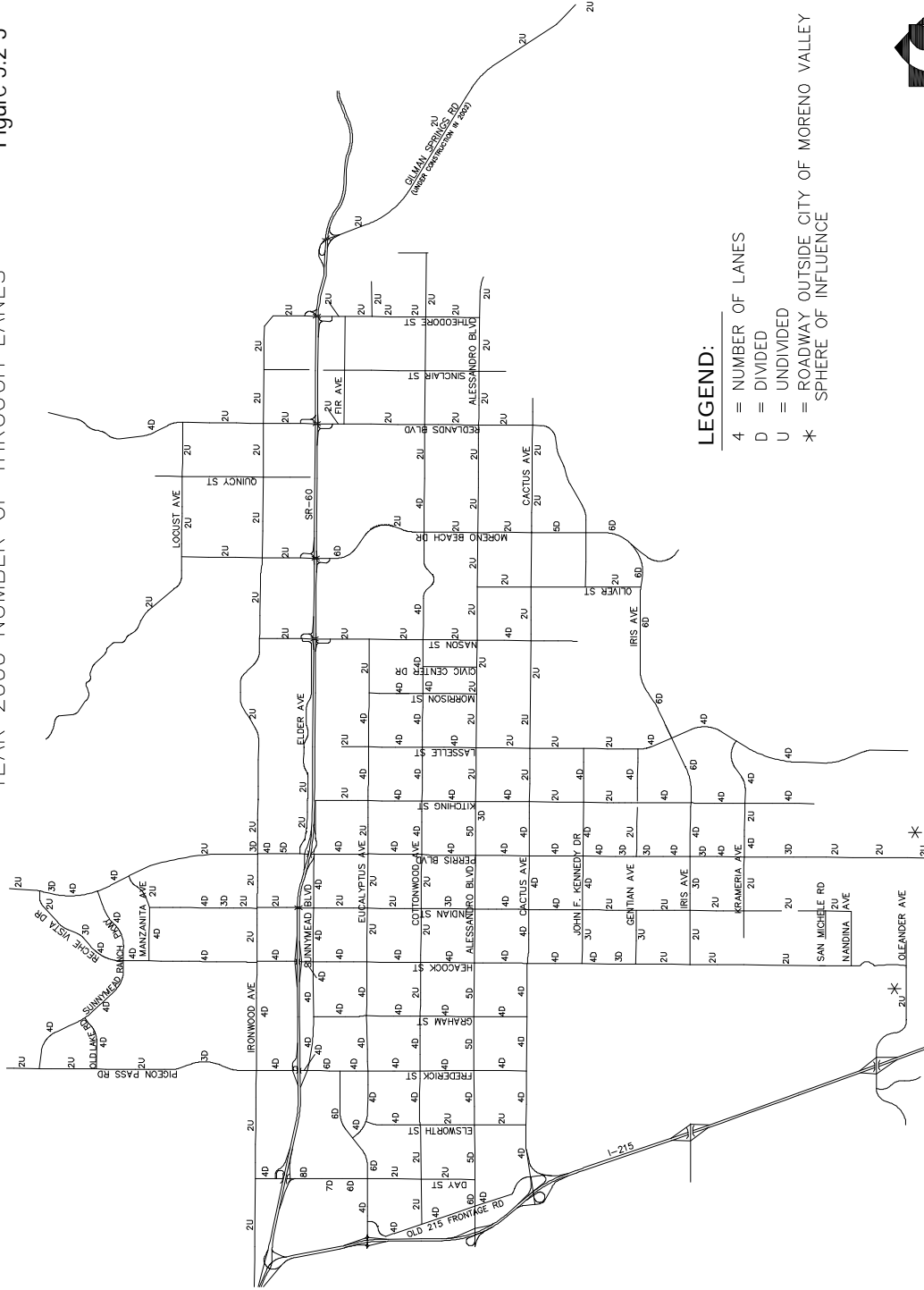


NOT TO SCALE

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Figure 5.2-3

YEAR 2000 NUMBER OF THROUGH LANES



1.b

MORENO VALLEY

Street Classification

- Freeway
- Divided Major Arterial
- Divided Major Arterial - Reduced Cross Section
- Divided Arterial - 6 lane
- Divided Arterial - 4 lane
- Arterial
- Minor Arterial
- Minor Arterial - Pigeon Pass Cross Section
- Collector
- Freeway Overpass
- Freeway Interchange

GEOGRAPHIC INFORMATION SYSTEMS

This information shows the proposed circulation plan. The information was derived from the City of Moreno Valley GIS. The base and facility information on this map is for display purposes only and should not be relied upon for any other purpose. The City of Moreno Valley, Riverside County and City of Moreno Valley will not be held responsible for any errors, omissions or inaccuracies in this information.

Date: April 18, 2005
 State Plane NAD83, Zone 6
 File: G:\arcmap\planning\gen_plan_updates\circ_c_plan_1052-6.mxd

Scale: 0 2,500 5,000 Feet
 0 0.25 0.5 1 Miles

Source: Urban Crossroads, June 2004

Figure 5.2-6
 Proposed Circulation Plan

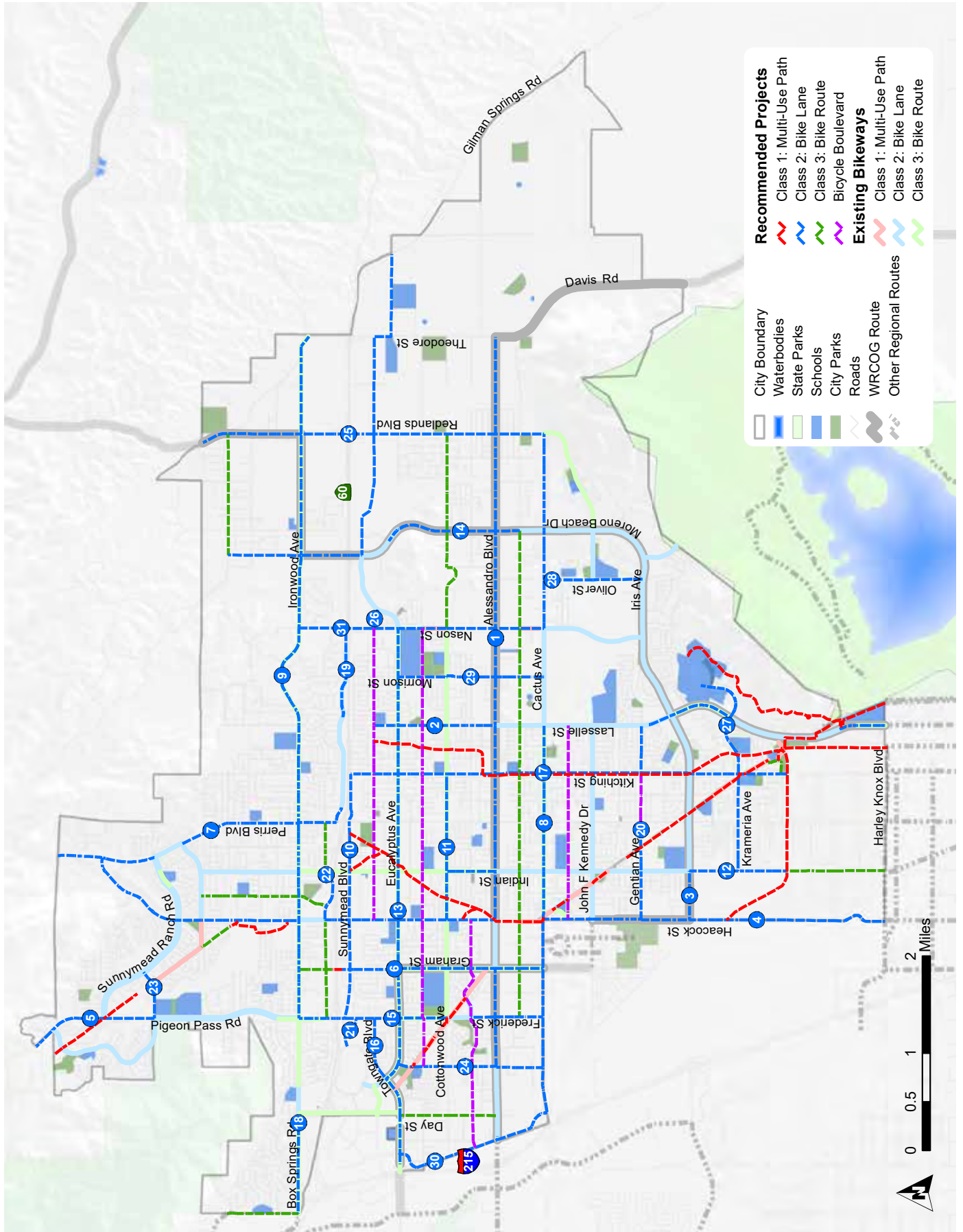
Moreno Valley General Plan
 Final Program EIR

City of Moreno Valley
 July 2006

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

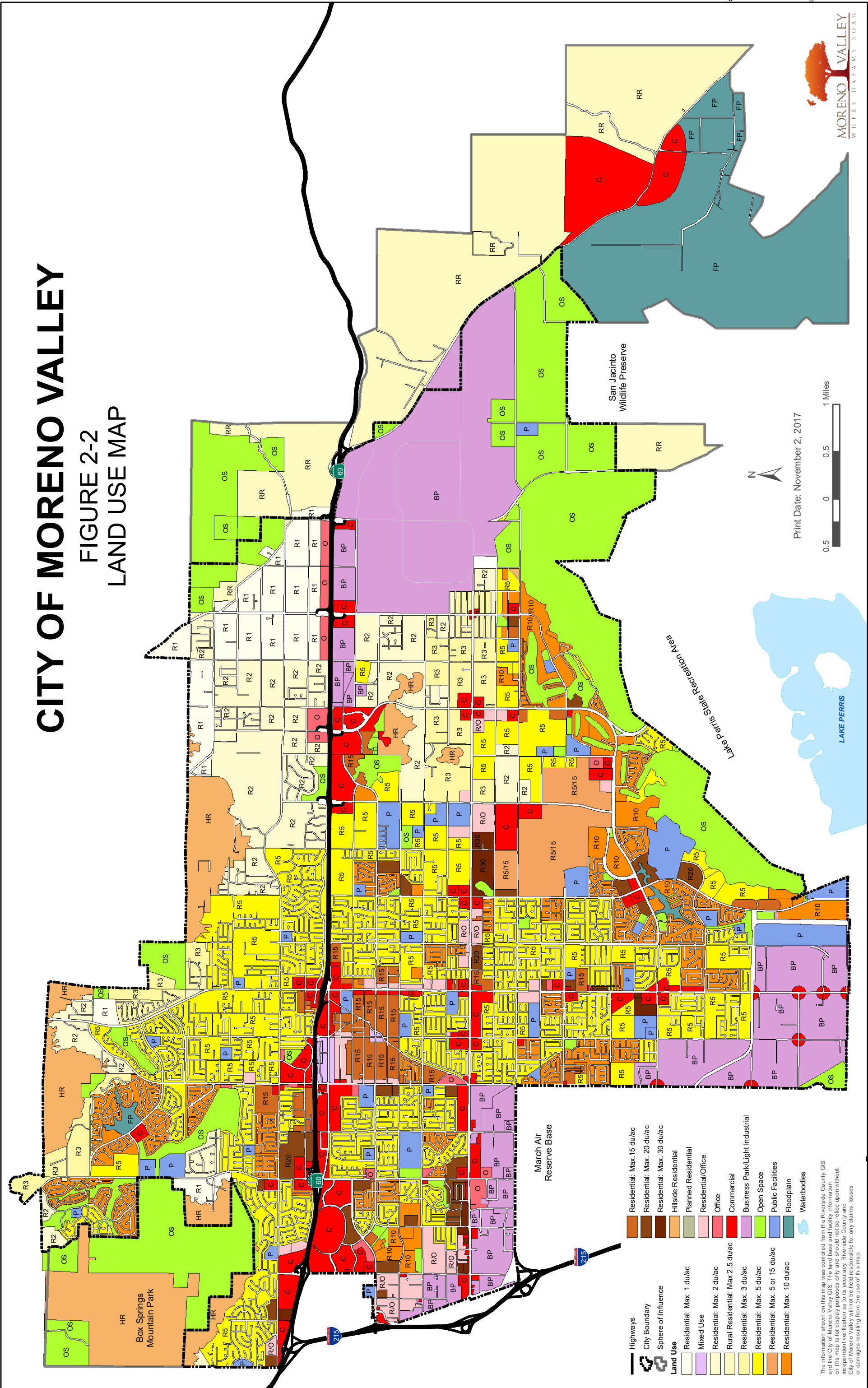
Packet Pg. 1272

Figure 15: Recommended Class 2 Bicycle Lanes



CITY OF MORENO VALLEY

FIGURE 2-2 LAND USE MAP



Print Date: November 2, 2017

0.5 0 0.5 1 Miles



- Highways
- City Boundary
- Sphere of Influence
- Land Use
 - Residential: Max. 1 du/ac
 - Mixed Use
 - Residential: Max. 2 du/ac
 - Rural Residential: Max. 2.5 du/ac
 - Residential: Max. 3 du/ac
 - Residential: Max. 5 du/ac
 - Residential: Max. 5 or 15 du/ac
 - Residential: Max. 10 du/ac
 - Residential: Max. 15 du/ac
 - Residential: Max. 20 du/ac
 - Residential: Max. 30 du/ac
 - Hillside Residential
 - Planned Residential
 - Residential/Office
 - Office
 - Commercial
 - Business Park/Light Industrial
 - Open Space
 - Public Facilities
 - Floodplain
 - Waterbodies

The information shown on this map was compiled from the Riverside County GIS and the City of Moreno Valley GIS. The land base and facility information on this map is for display purposes only and should not be relied upon without independent verification as to its accuracy. Riverside County and City of Moreno Valley will not be held responsible for any claims, losses or damages resulting from the use of this map.

APPENDIX B
EXISTING TRAFFIC COUNTS

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:
Tue, Aug 20, 19

LOCATION:
NORTH & SOUTH:
EAST & WEST:

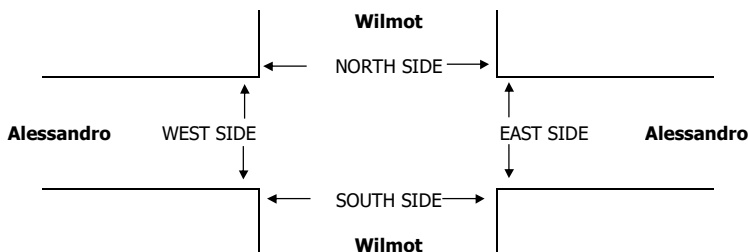
Moreno Valley
Wilmot
Alessandro

PROJECT #: SC2111
LOCATION #: 1
CONTROL: STOP N/S

NOTES:	AM		▲	
	PM		N	
	MD	◀ W		E ▶
	OTHER		S	
	OTHER		▼	

Add U-Turns to Left Turns

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL	U-TURNS			
	Wilmot			Wilmot			Alessandro			Alessandro				NB	SB	EB	WB
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR		0	0	0	0
AM																	
7:00 AM	4	3	4	0	1	7	5	25	1	1	55	1	107	0	0	0	0
7:15 AM	1	1	3	1	2	5	4	22	0	1	64	1	105	0	0	0	0
7:30 AM	3	0	3	4	0	4	3	29	1	0	74	1	122	0	0	0	0
7:45 AM	2	0	4	1	0	3	5	30	4	2	67	0	118	0	0	0	0
8:00 AM	2	0	0	0	0	3	3	29	3	1	49	0	90	0	0	0	0
8:15 AM	3	1	4	1	0	1	4	35	2	2	45	1	99	0	0	0	0
8:30 AM	5	0	2	0	0	2	2	19	2	2	52	1	87	0	0	0	0
8:45 AM	1	1	0	0	1	3	1	16	2	3	36	0	64	0	0	0	0
VOLUMES	21	6	20	7	4	28	27	205	15	12	442	5	792	0	0	0	0
APPROACH %	45%	13%	43%	18%	10%	72%	11%	83%	6%	3%	96%	1%					
APP/DEPART	47	/	38	39	/	31	247	/	232	459	/	491	0				
BEGIN PEAK HR	7:00 AM																
VOLUMES	10	4	14	6	3	19	17	106	6	4	260	3	452				
APPROACH %	36%	14%	50%	21%	11%	68%	13%	82%	5%	1%	97%	1%					
PEAK HR FACTOR	0.636			0.875			0.827			0.890			0.926				
APP/DEPART	28	/	24	28	/	13	129	/	126	267	/	289	0				
PM																	
4:00 PM	0	1	0	0	0	4	5	45	2	8	35	0	100	0	0	0	0
4:15 PM	4	1	3	0	0	1	7	52	1	3	25	1	98	0	0	0	0
4:30 PM	3	1	4	0	0	4	6	47	1	1	35	1	103	0	0	0	0
4:45 PM	0	2	3	0	2	8	1	49	2	2	28	0	97	0	0	0	0
5:00 PM	1	4	0	0	0	2	6	56	2	1	28	0	100	0	0	0	0
5:15 PM	1	0	4	0	0	3	4	55	2	4	26	0	99	0	0	0	0
5:30 PM	3	1	0	1	0	5	5	56	5	1	44	1	122	0	0	0	0
5:45 PM	0	2	0	0	0	4	4	40	1	1	33	1	86	0	0	0	0
VOLUMES	12	12	14	1	2	31	38	400	16	21	254	4	805	0	0	0	0
APPROACH %	32%	32%	37%	3%	6%	91%	8%	88%	4%	8%	91%	1%					
APP/DEPART	38	/	54	34	/	39	454	/	415	279	/	297	0				
BEGIN PEAK HR	4:45 PM																
VOLUMES	5	7	7	1	2	18	16	216	11	8	126	1	418				
APPROACH %	26%	37%	37%	5%	10%	86%	7%	89%	5%	6%	93%	1%					
PEAK HR FACTOR	0.950			0.525			0.920			0.734			0.857				
APP/DEPART	19	/	24	21	/	21	243	/	224	135	/	149	0				



Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

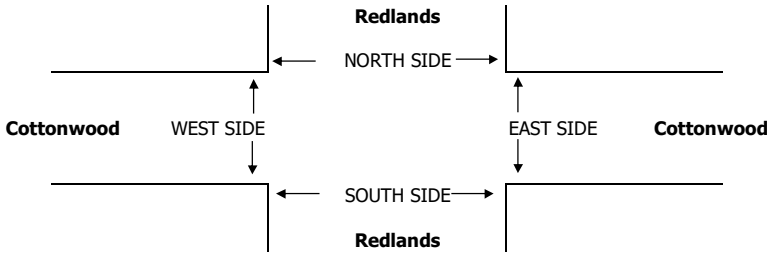
DATE: Tue, Aug 20, 19
 LOCATION: Moreno Valley
 NORTH & SOUTH: Redlands
 EAST & WEST: Cottonwood
 PROJECT #: SC2111
 LOCATION #: 2
 CONTROL: SIGNAL

NOTES:

AM		▲	
PM		N	
MD	◀ W		E ▶
OTHER		S	
OTHER		▼	

Add U-Turns to Left Turn

	NORTHBOUND Redlands			SOUTHBOUND Redlands			EASTBOUND Cottonwood			WESTBOUND Cottonwood			TOTAL	U-TURNS			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR		NB	SB	EB	WB
LANES:	1	1	X	X	1	1	1	X	1	X	X		0	0	0	0	
7:00 AM	3	127	0	0	79	6	16	0	2	0	0	0	0	0	1	0	
7:15 AM	11	129	0	0	74	7	8	0	11	0	0	0	0	0	0	0	
7:30 AM	5	111	0	0	83	11	10	0	21	0	0	0	0	0	0	0	
7:45 AM	11	82	0	0	80	7	6	0	14	0	0	0	0	0	0	0	
8:00 AM	5	74	0	0	57	4	5	0	7	0	0	0	0	0	0	0	
8:15 AM	2	84	0	0	52	7	6	0	3	0	0	0	0	0	0	0	
8:30 AM	2	61	0	0	46	4	6	0	2	0	0	0	0	0	0	0	
8:45 AM	3	66	0	0	40	4	4	0	1	0	0	0	0	0	0	0	
VOLUMES	42	734	0	0	511	50	61	0	61	0	0	0	1,459	1	0	1	0
APPROACH %	5%	95%	0%	0%	91%	9%	50%	0%	50%	0%	0%	0%					
APP/DEPART	776	/	794	561	/	573	122	/	0	0	/	92	0				
BEGIN PEAK HR	7:00 AM																
VOLUMES	30	449	0	0	316	31	40	0	48	0	0	0	914				
APPROACH %	6%	94%	0%	0%	91%	9%	45%	0%	55%	0%	0%	0%					
PEAK HR FACTOR	0.855			0.923			0.710			0.000			0.948				
APP/DEPART	479	/	488	347	/	365	88	/	0	0	/	61	0				
4:00 PM	3	85	0	0	125	10	5	0	7	0	0	0	235	0	0	0	0
4:15 PM	3	85	0	0	103	6	6	0	7	0	0	0	210	0	0	0	0
4:30 PM	4	82	0	0	111	6	4	0	4	0	0	0	211	0	0	0	0
4:45 PM	4	90	0	0	111	15	5	0	8	0	0	0	233	0	0	0	0
5:00 PM	4	87	0	0	114	18	9	0	3	0	0	0	235	0	0	0	0
5:15 PM	10	83	0	0	123	5	5	0	7	0	0	0	233	0	0	0	0
5:30 PM	5	74	0	0	120	14	7	0	8	0	0	0	228	0	0	0	0
5:45 PM	8	67	0	0	101	11	3	0	4	0	0	0	194	0	0	0	0
VOLUMES	41	653	0	0	908	85	44	0	48	0	0	0	1,779	0	0	0	0
APPROACH %	6%	94%	0%	0%	91%	9%	48%	0%	52%	0%	0%	0%					
APP/DEPART	694	/	697	993	/	956	92	/	0	0	/	126	0				
BEGIN PEAK HR	4:45 PM																
VOLUMES	23	334	0	0	468	52	26	0	26	0	0	0	929				
APPROACH %	6%	94%	0%	0%	90%	10%	50%	0%	50%	0%	0%	0%					
PEAK HR FACTOR	0.949			0.970			0.867			0.000			0.988				
APP/DEPART	357	/	360	520	/	494	52	/	0	0	/	75	0				



Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

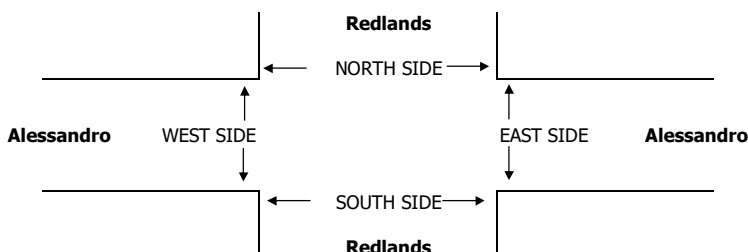
DATE: Tue, Aug 20, 19 **LOCATION:** NORTH & SOUTH: Moreno Valley
 EAST & WEST: Redlands Alessandro **PROJECT #:** SC2111
LOCATION #: 3
CONTROL: STOP ALL

NOTES:	AM	▲	N
	PM	←	W
	MD	→	E
	OTHER	▼	S
	OTHER		

Add U-Turns to Left Turns

LANES:	NORTHBOUND Redlands			SOUTHBOUND Redlands			EASTBOUND Alessandro			WESTBOUND Alessandro			TOTAL		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR			
AM															
7:00 AM	3	102	11	1	63	19	12	7	4	16	33	4	275		
7:15 AM	6	116	18	4	60	21	20	9	3	17	46	2	322		
7:30 AM	6	98	27	2	85	19	12	13	11	20	38	2	333		
7:45 AM	4	75	21	1	68	33	9	14	9	17	37	3	291		
8:00 AM	4	71	27	0	44	14	11	18	3	8	29	4	233		
8:15 AM	2	70	22	2	33	12	8	21	4	9	32	0	215		
8:30 AM	2	46	11	2	36	14	7	10	1	17	35	5	186		
8:45 AM	3	50	7	0	32	12	8	7	2	8	28	2	159		
VOLUMES	30	628	144	12	421	144	87	99	37	112	278	22	2,014		
APPROACH %	4%	78%	18%	2%	73%	25%	39%	44%	17%	27%	67%	5%			
APP/DEPART	802	/	737	577	/	570	223	/	255	412	/	452	0		
BEGIN PEAK HR	7:00 AM			8	276	92	53	43	27	70	154	11	1,221		
VOLUMES	19	391	77	2%	73%	24%	43%	35%	22%	30%	66%	5%			
APPROACH %	4%	80%	16%												
PEAK HR FACTOR	0.870			0.887			0.854			0.904			0.917		
APP/DEPART	487	/	455	376	/	373	123	/	128	235	/	265	0		
PM															
4:00 PM	1	69	11	5	102	15	15	27	2	10	16	4	277		
4:15 PM	1	65	9	5	90	13	22	25	4	9	11	5	259		
4:30 PM	4	59	14	3	77	15	26	28	3	11	19	2	261		
4:45 PM	0	75	19	6	94	15	20	22	5	7	15	2	280		
5:00 PM	4	70	16	10	90	10	12	47	4	14	12	4	293		
5:15 PM	5	59	15	4	101	14	30	19	7	12	18	8	292		
5:30 PM	7	59	17	8	108	17	17	33	6	14	15	4	305		
5:45 PM	3	55	8	4	87	14	14	20	5	10	21	5	246		
VOLUMES	25	511	109	45	749	113	156	221	36	87	127	34	2,213		
APPROACH %	4%	79%	17%	5%	83%	12%	38%	54%	9%	35%	51%	14%			
APP/DEPART	645	/	701	907	/	872	413	/	375	248	/	265	0		
BEGIN PEAK HR	4:45 PM			16	263	67	28	393	56	47	60	18	1,170		
VOLUMES	5%	76%	19%	6%	82%	12%	36%	55%	10%	38%	48%	14%			
APPROACH %	0.920			0.897			0.881			0.822			0.959		
PEAK HR FACTOR															
APP/DEPART	346	/	360	477	/	462	222	/	216	125	/	132	0		

U-TURNS			
NB	SB	EB	WB
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0



Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:
Tue, Aug 20, 19

LOCATION:
NORTH & SOUTH: Moreno Valley
EAST & WEST: Redlands
Cactus

PROJECT #: SC2111
LOCATION #: 4
CONTROL: STOP ALL

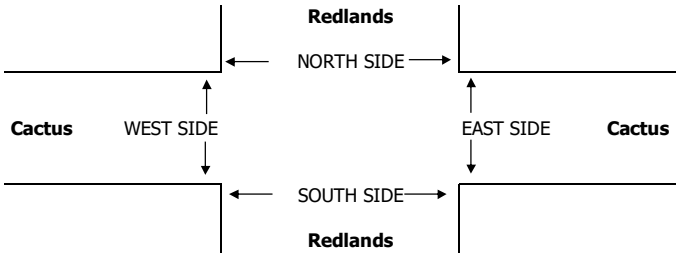
NOTES:	AM		▲	
	PM		N	
	MD	◀ W		E ▶
	OTHER		S	
	OTHER		▼	

Add U-Turns to Left Turn

LANES:	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL
	Redlands			Redlands			Cactus			Cactus			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
7:00 AM	1	84	0	1	53	28	29	4	3	0	3	2	208
7:15 AM	7	96	0	2	53	22	26	1	5	0	5	7	224
7:30 AM	5	87	0	0	81	25	42	1	23	1	5	6	276
7:45 AM	8	78	0	0	92	33	27	0	39	0	1	5	283
8:00 AM	10	60	0	2	38	22	33	1	4	0	3	2	175
8:15 AM	7	75	0	3	42	11	27	1	3	0	4	4	177
8:30 AM	4	42	0	1	42	11	22	3	1	0	2	2	130
8:45 AM	5	53	0	0	37	13	14	2	2	0	0	0	126
VOLUMES	47	575	0	9	438	165	220	13	80	1	23	28	1,599
APPROACH %	8%	92%	0%	1%	72%	27%	70%	4%	26%	2%	44%	54%	
APP/DEPART	622	/	823	612	/	520	313	/	22	52	/	234	0
BEGIN PEAK HR	7:00 AM												
VOLUMES	21	345	0	3	279	108	124	6	70	1	14	20	991
APPROACH %	6%	94%	0%	1%	72%	28%	62%	3%	35%	3%	40%	57%	
PEAK HR FACTOR	0.888			0.780			0.758			0.729			0.875
APP/DEPART	366	/	489	390	/	351	200	/	9	35	/	142	0
4:00 PM	2	48	0	3	71	27	24	2	3	0	1	4	185
4:15 PM	2	54	1	3	72	26	24	4	5	0	0	2	193
4:30 PM	2	39	0	5	67	28	38	2	6	1	4	1	193
4:45 PM	3	47	0	3	65	28	45	6	3	0	3	2	205
5:00 PM	5	52	0	2	76	33	39	2	9	0	1	2	221
5:15 PM	3	44	0	6	79	25	42	1	12	0	1	3	216
5:30 PM	0	41	0	7	84	22	33	4	6	0	1	2	200
5:45 PM	4	41	1	4	78	19	25	2	5	0	1	2	182
VOLUMES	21	366	2	33	592	208	270	23	49	1	12	18	1,595
APPROACH %	5%	94%	1%	4%	71%	25%	79%	7%	14%	3%	39%	58%	
APP/DEPART	389	/	654	833	/	642	342	/	58	31	/	241	0
BEGIN PEAK HR	4:45 PM												
VOLUMES	11	184	0	18	304	108	159	13	30	0	6	9	842
APPROACH %	6%	94%	0%	4%	71%	25%	79%	6%	15%	0%	40%	60%	
PEAK HR FACTOR	0.855			0.951			0.918			0.750			0.952
APP/DEPART	195	/	352	430	/	334	202	/	31	15	/	125	0

U-TURNS			
NB	SB	EB	WB
0	0	0	0
0	0	0	0
0	0	0	0
1	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
1	0	0	0

0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0



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INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:
Tue, Aug 20, 19

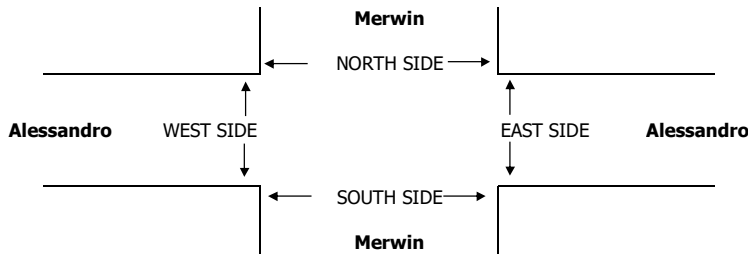
LOCATION:
NORTH & SOUTH: Moreno Valley
EAST & WEST: Merwin
Alessandro

PROJECT #: SC2111
LOCATION #: 5
CONTROL: STOP N/S

NOTES:	AM		▲	
	PM		N	
	MD	◀	W	E ▶
	OTHER		S	
	OTHER		▼	

Add U-Turns to Left Turn

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL	U-TURNS					
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR		NB	SB	EB	WB		
LANES:	0	1	0	0	1	0	0	1	0	0	1	0	0	1	0	0	0	0	0
7:00 AM	0	0	0	0	0	1	0	21	0	0	47	0	69	0	0	0	0		
7:15 AM	0	0	0	0	0	1	0	22	0	0	62	1	86	0	0	0	0		
7:30 AM	2	0	0	0	0	0	0	42	0	0	53	0	97	0	0	0	0		
7:45 AM	1	0	1	0	0	1	0	36	0	0	61	0	100	0	0	0	0		
8:00 AM	1	0	0	0	0	2	1	35	0	0	37	0	76	0	0	0	0		
8:15 AM	0	0	0	0	0	0	0	43	0	0	36	1	80	0	0	0	0		
8:30 AM	0	0	1	0	0	2	0	35	0	0	48	0	86	0	0	0	0		
8:45 AM	0	0	1	0	0	0	0	14	1	0	38	1	55	0	0	0	0		
VOLUMES	4	0	3	0	0	7	1	248	1	0	382	3	649	0	0	0	0		
APPROACH %	57%	0%	43%	0%	0%	100%	0%	99%	0%	0%	99%	1%		0	0	0	0		
APP/DEPART	7	/	4	7	/	1	250	/	251	385	/	393	0	0	0	0	0		
BEGIN PEAK HR	7:15 AM																		
VOLUMES	4	0	1	0	0	4	1	135	0	0	213	1	359	0	0	0	0		
APPROACH %	80%	0%	20%	0%	0%	100%	1%	99%	0%	0%	100%	0%		0	0	0	0		
PEAK HR FACTOR	0.625			0.500			0.810			0.849			0.898						
APP/DEPART	5	/	2	4	/	0	136	/	136	214	/	221	0	0	0	0	0		
4:00 PM	0	0	0	1	0	1	2	24	1	0	29	0	58	0	0	0	0		
4:15 PM	0	0	0	1	0	0	1	49	0	1	24	0	76	0	0	0	0		
4:30 PM	1	0	0	0	1	0	0	28	0	0	28	0	58	0	0	0	0		
4:45 PM	1	0	0	0	0	1	0	57	0	0	26	0	85	0	0	0	0		
5:00 PM	0	0	1	0	0	0	0	50	1	2	26	2	82	0	0	0	0		
5:15 PM	0	0	0	0	0	0	1	57	1	0	32	0	91	0	0	0	0		
5:30 PM	0	0	0	0	0	0	1	45	0	0	29	1	76	0	0	0	0		
5:45 PM	0	0	1	0	0	2	0	39	1	0	24	0	67	0	0	0	0		
VOLUMES	2	0	2	2	1	4	5	349	4	3	218	3	593	0	0	0	0		
APPROACH %	50%	0%	50%	29%	14%	57%	1%	97%	1%	1%	97%	1%		0	0	0	0		
APP/DEPART	4	/	8	7	/	8	358	/	353	224	/	224	0	0	0	0	0		
BEGIN PEAK HR	4:45 PM																		
VOLUMES	1	0	1	0	0	1	2	209	2	2	113	3	334	0	0	0	0		
APPROACH %	50%	0%	50%	0%	0%	100%	1%	98%	1%	2%	96%	3%		0	0	0	0		
PEAK HR FACTOR	0.500			0.250			0.903			0.922			0.918						
APP/DEPART	2	/	5	1	/	4	213	/	210	118	/	115	0	0	0	0	0		



Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Tuesday, August 20, 2019

Location: Moreno Valley

PROJECT: SC2111

ADT Alessandro between Redlands and Wilmot.

Prepared by AimTD tel. 714 253 7888

AM Period	NB	SB	EB	WB	PM Period	NB	SB	EB	WB			
0:30			5	5	12:00			26	24			
0:15			2	3	12:15			21	27			
0:30			4	4	12:30			20	26			
0:45			3	14	3	15	29	28	95	44	121	216
1:00			0	4	13:00			35	31			
1:15			4	0	13:15			31	31			
1:30			3	6	13:30			36	25			
1:45			2	9	3	13	22	24	126	27	114	240
2:00			0	0	14:00			32	36			
2:15			3	0	14:15			42	34			
2:30			0	2	14:30			40	54			
2:45			2	5	0	2	7	52	166	33	157	323
3:00			2	3	15:00			53	23			
3:15			4	3	15:15			59	32			
3:30			6	0	15:30			50	34			
3:45			0	12	5	11	23	27	189	50	139	328
4:00			2	3	16:00			41	45			
4:15			9	6	16:15			54	27			
4:30			11	7	16:30			47	34			
4:45			16	38	14	30	68	59	201	32	138	339
5:00			10	14	17:00			55	31			
5:15			10	21	17:15			64	30			
5:30			11	26	17:30			51	44			
5:45			7	38	15	76	114	44	214	34	139	353
6:00			20	13	18:00			38	32			
6:15			27	30	18:15			40	30			
6:30			18	44	18:30			37	32			
6:45			27	92	43	130	222	32	147	30	124	271
7:00			24	53	19:00			31	20			
7:15			27	70	19:15			20	23			
7:30			38	67	19:30			32	25			
7:45			36	125	71	261	386	22	105	16	84	189
8:00			34	53	20:00			22	15			
8:15			39	45	20:15			23	14			
8:30			22	54	20:30			23	18			
8:45			15	110	42	194	304	23	91	20	67	158
9:00			33	36	21:00			13	13			
9:15			29	21	21:15			12	8			
9:30			21	27	21:30			15	18			
9:45			34	117	34	118	235	16	56	9	48	104
10:00			29	25	22:00			8	11			
10:15			20	11	22:15			8	4			
10:30			29	28	22:30			9	8			
10:45			18	96	40	104	200	11	36	5	28	64
11:00			26	18	23:00			8	9			
11:15			23	23	23:15			5	3			
11:30			27	18	23:30			7	8			
11:45			39	115	21	80	195	5	25	4	24	49
Total Vol.				771	1034	1805		1451	1183	2634		

Daily Totals				
NB	SB	EB	WB	Combined
		2222	2217	4439

Split %	AM				PM			
	0:30	0:30	7:30	7:00	7:15	16:45	15:15	16:45
			42.7%	57.3%	40.7%	55.1%	44.9%	59.3%
Peak Hour	0:30	0:30	7:30	7:00	7:15	16:45	15:15	16:45
Volume			147	261	396	229	161	366
P.H.F.			0.94	0.92	0.93	0.89	0.81	0.96

APPENDIX C

HCM ANALYSIS WORKSHEETS

EXISTING CONDITIONS

Redlands Alessandro TIA
1: Wilmot St & Alessandro Bl

Existing Conditions AM Peak Hour
HCM 6th TWSC

Intersection												
Int Delay, s/veh	1.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	17	106	6	4	260	3	10	4	14	6	3	19
Future Vol, veh/h	17	106	6	4	260	3	10	4	14	6	3	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	18	114	6	4	280	3	11	4	15	6	3	20

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	283	0	0	120	0	0	454	444	117	453	446	282
Stage 1	-	-	-	-	-	-	153	153	-	290	290	-
Stage 2	-	-	-	-	-	-	301	291	-	163	156	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1279	-	-	1468	-	-	516	508	935	517	507	757
Stage 1	-	-	-	-	-	-	849	771	-	718	672	-
Stage 2	-	-	-	-	-	-	708	672	-	839	769	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1279	-	-	1468	-	-	493	499	935	498	498	757
Mov Cap-2 Maneuver	-	-	-	-	-	-	493	499	-	498	498	-
Stage 1	-	-	-	-	-	-	836	759	-	707	670	-
Stage 2	-	-	-	-	-	-	684	670	-	809	757	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1			0.1			10.8			10.8		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	647	1279	-	-	1468	-	-	649
HCM Lane V/C Ratio	0.047	0.014	-	-	0.003	-	-	0.046
HCM Control Delay (s)	10.8	7.9	0	-	7.5	0	-	10.8
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
2: Redlands Bl & Cottonwood Av

Existing Conditions AM Peak Hour
Timings



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗	↖	↑	↑	↗
Traffic Volume (vph)	40	48	30	449	316	31
Future Volume (vph)	40	48	30	449	316	31
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	22.5	22.5	11.5	22.5	36.5	36.5
Total Split (s)	23.0	23.0	12.0	52.0	40.0	40.0
Total Split (%)	30.7%	30.7%	16.0%	69.3%	53.3%	53.3%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	Max	Max	Max
Act Effect Green (s)	7.6	7.6	7.3	52.8	48.3	48.3
Actuated g/C Ratio	0.12	0.12	0.12	0.85	0.78	0.78
v/c Ratio	0.20	0.21	0.15	0.30	0.23	0.03
Control Delay	27.2	11.0	27.3	2.6	5.3	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.2	11.0	27.3	2.6	5.3	2.7
LOS	C	B	C	A	A	A
Approach Delay	18.4			4.2	5.1	
Approach LOS	B			A	A	

Intersection Summary

Cycle Length: 75
 Actuated Cycle Length: 62.1
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.30
 Intersection Signal Delay: 5.9
 Intersection Capacity Utilization 37.4%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service A

Splits and Phases: 2: Redlands Bl & Cottonwood Av



Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
2: Redlands Bl & Cottonwood Av

Existing Conditions AM Peak Hour
HCM 6th Signalized Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↶	↷	↶	↷	↷	↶
Traffic Volume (veh/h)	40	48	30	449	316	31
Future Volume (veh/h)	40	48	30	449	316	31
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	42	51	32	473	333	33
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	161	143	85	1458	1247	1057
Arrive On Green	0.09	0.09	0.05	0.78	0.67	0.67
Sat Flow, veh/h	1781	1585	1781	1870	1870	1585
Grp Volume(v), veh/h	42	51	32	473	333	33
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1870	1870	1585
Q Serve(g_s), s	1.4	1.9	1.1	4.6	4.4	0.4
Cycle Q Clear(g_c), s	1.4	1.9	1.1	4.6	4.4	0.4
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	161	143	85	1458	1247	1057
V/C Ratio(X)	0.26	0.36	0.37	0.32	0.27	0.03
Avail Cap(c_a), veh/h	550	489	231	1458	1247	1057
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.1	26.3	28.4	2.0	4.2	3.5
Incr Delay (d2), s/veh	0.8	1.5	2.7	0.6	0.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	1.7	0.5	0.2	1.0	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	26.9	27.8	31.1	2.6	4.7	3.5
LnGrp LOS	C	C	C	A	A	A
Approach Vol, veh/h	93			505	366	
Approach Delay, s/veh	27.4			4.4	4.6	
Approach LOS	C			A	A	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		52.0		9.6	7.0	45.0
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		48.0		19.0	8.0	36.0
Max Q Clear Time (g_c+I1), s		6.6		3.9	3.1	6.4
Green Ext Time (p_c), s		2.8		0.2	0.0	1.9
Intersection Summary						
HCM 6th Ctrl Delay			6.7			
HCM 6th LOS			A			

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
3: Redlands BI & Alessandro BI

Existing Conditions AM Peak Hour
HCM 6th AWSC

Intersection

Intersection Delay, s/veh30.5

Intersection LOS D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕		↕			↕	↕		↕	
Traffic Vol, veh/h	53	43	27	70	154	11	19	391	77	8	276	92
Future Vol, veh/h	53	43	27	70	154	11	19	391	77	8	276	92
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	58	47	29	76	167	12	21	425	84	9	300	100
Number of Lanes	0	1	1	0	1	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	2
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	1	2	2	1
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	2	1	1	2
HCM Control Delay	13.7	21.3	36.4	34.1
HCM LOS	B	C	E	D

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	5%	0%	55%	0%	30%	2%
Vol Thru, %	95%	0%	45%	0%	66%	73%
Vol Right, %	0%	100%	0%	100%	5%	24%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	410	77	96	27	235	376
LT Vol	19	0	53	0	70	8
Through Vol	391	0	43	0	154	276
RT Vol	0	77	0	27	11	92
Lane Flow Rate	446	84	104	29	255	409
Geometry Grp	7	7	7	7	6	6
Degree of Util (X)	0.872	0.147	0.254	0.063	0.569	0.809
Departure Headway (Hd)	7.044	6.304	8.778	7.766	8.014	7.129
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	513	565	412	464	447	503
Service Time	4.832	4.091	6.478	5.466	6.112	5.221
HCM Lane V/C Ratio	0.869	0.149	0.252	0.063	0.57	0.813
HCM Control Delay	41.3	10.2	14.4	11	21.3	34.1
HCM Lane LOS	E	B	B	B	C	D
HCM 95th-tile Q	9.4	0.5	1	0.2	3.5	7.7

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
4: Redlands Bl & Cactus Av

Existing Conditions AM Peak Hour
HCM 6th AWSC

Intersection

Intersection Delay, s/veh 14.7

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕	↗		↕			↕↕	↗		↗	↗
Traffic Vol, veh/h	124	6	70	1	14	20	21	345	0	3	279	108
Future Vol, veh/h	124	6	70	1	14	20	21	345	0	3	279	108
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	141	7	80	1	16	23	24	392	0	3	317	123
Number of Lanes	0	2	1	0	1	0	0	2	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	3	2	3
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	2	3	3	1
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	3	2	1	3
HCM Control Delay	12.1	11	14.3	16.8
HCM LOS	B	B	B	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	SBLn1	SBLn2
Vol Left, %	15%	0%	0%	98%	0%	0%	3%	1%	0%
Vol Thru, %	85%	100%	100%	2%	100%	0%	40%	95%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	57%	4%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	136	230	0	126	4	70	35	293	97
LT Vol	21	0	0	124	0	0	1	3	0
Through Vol	115	230	0	2	4	0	14	279	0
RT Vol	0	0	0	0	0	70	20	11	97
Lane Flow Rate	155	261	0	143	5	80	40	333	110
Geometry Grp	8	8	8	7	7	7	8	8	8
Degree of Util (X)	0.288	0.481	0	0.296	0.009	0.138	0.084	0.606	0.18
Departure Headway (Hd)	6.707	6.629	6.629	7.447	6.946	6.233	7.621	6.558	5.871
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	533	541	0	481	513	572	473	549	606
Service Time	4.488	4.409	4.409	5.225	4.723	4.01	5.321	4.337	3.649
HCM Lane V/C Ratio	0.291	0.482	0	0.297	0.01	0.14	0.085	0.607	0.182
HCM Control Delay	12.2	15.5	9.4	13.4	9.8	10	11	19	10
HCM Lane LOS	B	C	N	B	A	A	B	C	A
HCM 95th-tile Q	1.2	2.6	0	1.2	0	0.5	0.3	4	0.7

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
5: Merwin St & Alessandro Bl

Existing Conditions AM Peak Hour
HCM 6th TWSC

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	135	0	0	213	1	4	0	1	0	0	4
Future Vol, veh/h	1	135	0	0	213	1	4	0	1	0	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	150	0	0	237	1	4	0	1	0	0	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	238	0	0	150	0	0	392	390	150	391	390	238
Stage 1	-	-	-	-	-	-	152	152	-	238	238	-
Stage 2	-	-	-	-	-	-	240	238	-	153	152	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1329	-	-	1431	-	-	567	545	896	568	545	801
Stage 1	-	-	-	-	-	-	850	772	-	765	708	-
Stage 2	-	-	-	-	-	-	763	708	-	849	772	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1329	-	-	1431	-	-	564	544	896	567	544	801
Mov Cap-2 Maneuver	-	-	-	-	-	-	564	544	-	567	544	-
Stage 1	-	-	-	-	-	-	849	771	-	764	708	-
Stage 2	-	-	-	-	-	-	759	708	-	847	771	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0	11	9.5
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	609	1329	-	-	1431	-	-	801
HCM Lane V/C Ratio	0.009	0.001	-	-	-	-	-	0.006
HCM Control Delay (s)	11	7.7	0	-	0	-	-	9.5
HCM Lane LOS	B	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
1: Wilmot St & Alessandro Bl

Existing Conditions PM Peak Hour
HCM 6th TWSC

Intersection												
Int Delay, s/veh	1.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	16	216	11	8	126	1	5	7	7	1	2	18
Future Vol, veh/h	16	216	11	8	126	1	5	7	7	1	2	18
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	19	251	13	9	147	1	6	8	8	1	2	21

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	148	0	0	264	0	0	473	462	258	470	468	148
Stage 1	-	-	-	-	-	-	296	296	-	166	166	-
Stage 2	-	-	-	-	-	-	177	166	-	304	302	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1434	-	-	1300	-	-	501	497	781	504	493	899
Stage 1	-	-	-	-	-	-	712	668	-	836	761	-
Stage 2	-	-	-	-	-	-	825	761	-	705	664	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1434	-	-	1300	-	-	478	485	781	483	481	899
Mov Cap-2 Maneuver	-	-	-	-	-	-	478	485	-	483	481	-
Stage 1	-	-	-	-	-	-	701	657	-	823	755	-
Stage 2	-	-	-	-	-	-	797	755	-	678	653	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.5			0.5			11.7			9.6		
HCM LOS							B			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	561	1434	-	-	1300	-	-	800
HCM Lane V/C Ratio	0.039	0.013	-	-	0.007	-	-	0.031
HCM Control Delay (s)	11.7	7.5	0	-	7.8	0	-	9.6
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
2: Redlands Bl & Cottonwood Av

Existing Conditions PM Peak Hour
Timings



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗	↖	↗	↗	↗
Traffic Volume (vph)	26	26	23	334	468	52
Future Volume (vph)	26	26	23	334	468	52
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	22.5	22.5	11.5	22.5	36.5	36.5
Total Split (s)	23.0	23.0	12.0	52.0	40.0	40.0
Total Split (%)	30.7%	30.7%	16.0%	69.3%	53.3%	53.3%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	Max	Max	Max
Act Effect Green (s)	7.2	7.2	7.1	55.4	53.0	53.0
Actuated g/C Ratio	0.11	0.11	0.11	0.85	0.82	0.82
v/c Ratio	0.13	0.13	0.12	0.21	0.31	0.04
Control Delay	27.0	12.8	26.8	2.1	4.3	1.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.0	12.8	26.8	2.1	4.3	1.8
LOS	C	B	C	A	A	A
Approach Delay	19.9			3.7	4.1	
Approach LOS	B			A	A	

Intersection Summary

Cycle Length: 75
 Actuated Cycle Length: 64.8
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.31
 Intersection Signal Delay: 4.8
 Intersection LOS: A
 Intersection Capacity Utilization 37.1%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 2: Redlands Bl & Cottonwood Av



Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
2: Redlands Bl & Cottonwood Av

Existing Conditions PM Peak Hour
HCM 6th Signalized Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↶	↷	↶	↷	↷	↶
Traffic Volume (veh/h)	26	26	23	334	468	52
Future Volume (veh/h)	26	26	23	334	468	52
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	26	26	23	337	473	53
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	120	107	66	1495	1301	1102
Arrive On Green	0.07	0.07	0.04	0.80	0.70	0.70
Sat Flow, veh/h	1781	1585	1781	1870	1870	1585
Grp Volume(v), veh/h	26	26	23	337	473	53
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1870	1870	1585
Q Serve(g_s), s	0.8	0.9	0.8	2.7	6.2	0.6
Cycle Q Clear(g_c), s	0.8	0.9	0.8	2.7	6.2	0.6
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	120	107	66	1495	1301	1102
V/C Ratio(X)	0.22	0.24	0.35	0.23	0.36	0.05
Avail Cap(c_a), veh/h	564	501	237	1495	1301	1102
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.5	26.5	28.2	1.5	3.7	2.9
Incr Delay (d2), s/veh	0.9	1.2	3.1	0.4	0.8	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.9	0.3	0.1	1.1	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	27.4	27.7	31.3	1.8	4.5	3.0
LnGrp LOS	C	C	C	A	A	A
Approach Vol, veh/h	52			360	526	
Approach Delay, s/veh	27.5			3.7	4.4	
Approach LOS	C			A	A	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		52.0		8.1	6.2	45.8
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		48.0		19.0	8.0	36.0
Max Q Clear Time (g_c+I1), s		4.7		2.9	2.8	8.2
Green Ext Time (p_c), s		1.8		0.1	0.0	2.8
Intersection Summary						
HCM 6th Ctrl Delay			5.4			
HCM 6th LOS			A			

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
3: Redlands BI & Alessandro BI

Existing Conditions PM Peak Hour
HCM 6th AWSC

Intersection

Intersection Delay, s/veh 28.6

Intersection LOS D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔		↔			↔	↔		↔	
Traffic Vol, veh/h	79	121	22	47	60	18	16	263	67	28	393	56
Future Vol, veh/h	79	121	22	47	60	18	16	263	67	28	393	56
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	82	126	23	49	63	19	17	274	70	29	409	58
Number of Lanes	0	1	1	0	1	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	2
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	1	2	2	1
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	2	1	1	2
HCM Control Delay	16.2	14.5	16.7	46.8
HCM LOS	C	B	C	E

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	6%	0%	40%	0%	38%	6%
Vol Thru, %	94%	0%	60%	0%	48%	82%
Vol Right, %	0%	100%	0%	100%	14%	12%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	279	67	200	22	125	477
LT Vol	16	0	79	0	47	28
Through Vol	263	0	121	0	60	393
RT Vol	0	67	0	22	18	56
Lane Flow Rate	291	70	208	23	130	497
Geometry Grp	7	7	7	7	6	6
Degree of Util (X)	0.562	0.12	0.452	0.044	0.292	0.917
Departure Headway (Hd)	6.956	6.21	7.819	6.896	8.06	6.642
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	517	575	460	517	444	547
Service Time	4.719	3.972	5.584	4.661	6.138	4.695
HCM Lane V/C Ratio	0.563	0.122	0.452	0.044	0.293	0.909
HCM Control Delay	18.3	9.8	16.9	10	14.5	46.8
HCM Lane LOS	C	A	C	A	B	E
HCM 95th-tile Q	3.4	0.4	2.3	0.1	1.2	11.1

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
4: Redlands Bl & Cactus Av

Existing Conditions PM Peak Hour
HCM 6th AWSC

Intersection

Intersection Delay, s/veh 13

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕	↗		↕			↕↕	↗		↗	↗
Traffic Vol, veh/h	159	13	30	0	6	9	11	184	0	18	304	108
Future Vol, veh/h	159	13	30	0	6	9	11	184	0	18	304	108
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	167	14	32	0	6	9	12	194	0	19	320	114
Number of Lanes	0	2	1	0	1	0	0	2	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	3	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	3	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	1	3
HCM Control Delay	12	9.7	10.7	14.6
HCM LOS	B	A	B	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	SBLn1	SBLn2
Vol Left, %	15%	0%	0%	97%	0%	0%	0%	5%	0%
Vol Thru, %	85%	100%	100%	3%	100%	0%	40%	91%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	60%	3%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	72	123	0	163	9	30	15	333	97
LT Vol	11	0	0	159	0	0	0	18	0
Through Vol	61	123	0	4	9	0	6	304	0
RT Vol	0	0	0	0	0	30	9	11	97
Lane Flow Rate	76	129	0	172	9	32	16	350	102
Geometry Grp	8	8	8	7	7	7	8	8	8
Degree of Util (X)	0.137	0.229	0	0.326	0.016	0.049	0.029	0.574	0.147
Departure Headway (Hd)	6.47	6.393	6.393	6.822	6.33	5.621	6.721	5.895	5.186
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	554	562	0	528	565	637	531	613	692
Service Time	4.212	4.135	4.135	4.56	4.068	3.359	4.48	3.629	2.92
HCM Lane V/C Ratio	0.137	0.23	0	0.326	0.016	0.05	0.03	0.571	0.147
HCM Control Delay	10.2	11	9.1	12.8	9.2	8.7	9.7	16.3	8.8
HCM Lane LOS	B	B	N	B	A	A	A	C	A
HCM 95th-tile Q	0.5	0.9	0	1.4	0	0.2	0.1	3.6	0.5

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
5: Merwin St & Alessandro Bl

Existing Conditions PM Peak Hour
HCM 6th TWSC

Intersection												
Int Delay, s/veh	0.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	209	2	2	113	3	1	0	1	0	0	1
Future Vol, veh/h	2	209	2	2	113	3	1	0	1	0	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	227	2	2	123	3	1	0	1	0	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	126	0	0	229	0	0	361	362	228	362	362	125
Stage 1	-	-	-	-	-	-	232	232	-	129	129	-
Stage 2	-	-	-	-	-	-	129	130	-	233	233	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1460	-	-	1339	-	-	595	565	811	594	565	926
Stage 1	-	-	-	-	-	-	771	713	-	875	789	-
Stage 2	-	-	-	-	-	-	875	789	-	770	712	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1460	-	-	1339	-	-	593	563	811	592	563	926
Mov Cap-2 Maneuver	-	-	-	-	-	-	593	563	-	592	563	-
Stage 1	-	-	-	-	-	-	769	712	-	873	787	-
Stage 2	-	-	-	-	-	-	872	787	-	767	711	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.1			10.3			8.9		
HCM LOS							B			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	685	1460	-	-	1339	-	-	926
HCM Lane V/C Ratio	0.003	0.001	-	-	0.002	-	-	0.001
HCM Control Delay (s)	10.3	7.5	0	-	7.7	0	-	8.9
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

EP CONDITIONS

Redlands Alessandro TIA
1: Wilmot St & Alessandro BI

EP Conditions AM Peak Hour
HCM 6th TWSC

Intersection												
Int Delay, s/veh	1.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	17	113	6	8	269	4	10	4	15	7	3	19
Future Vol, veh/h	17	113	6	8	269	4	10	4	15	7	3	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	18	122	6	9	289	4	11	4	16	8	3	20

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	293	0	0	128	0	0	482	472	125	480	473	291
Stage 1	-	-	-	-	-	-	161	161	-	309	309	-
Stage 2	-	-	-	-	-	-	321	311	-	171	164	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1269	-	-	1458	-	-	495	490	926	496	490	748
Stage 1	-	-	-	-	-	-	841	765	-	701	660	-
Stage 2	-	-	-	-	-	-	691	658	-	831	762	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1269	-	-	1458	-	-	471	479	926	476	479	748
Mov Cap-2 Maneuver	-	-	-	-	-	-	471	479	-	476	479	-
Stage 1	-	-	-	-	-	-	828	754	-	690	655	-
Stage 2	-	-	-	-	-	-	664	653	-	800	751	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1			0.2			11			11.1		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	633	1269	-	-	1458	-	-	625
HCM Lane V/C Ratio	0.049	0.014	-	-	0.006	-	-	0.05
HCM Control Delay (s)	11	7.9	0	-	7.5	0	-	11.1
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0.2

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
2: Redlands Bl & Cottonwood Av

EP Conditions AM Peak Hour
Timings



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗	↖	↑	↑	↗
Traffic Volume (vph)	40	52	34	452	319	31
Future Volume (vph)	40	52	34	452	319	31
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	22.5	22.5	11.5	22.5	36.5	36.5
Total Split (s)	23.0	23.0	12.0	52.0	40.0	40.0
Total Split (%)	30.7%	30.7%	16.0%	69.3%	53.3%	53.3%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	Max	Max	Max
Act Effct Green (s)	7.5	7.5	7.3	51.6	47.0	47.0
Actuated g/C Ratio	0.12	0.12	0.11	0.80	0.73	0.73
v/c Ratio	0.20	0.24	0.18	0.32	0.25	0.03
Control Delay	27.8	11.0	27.9	3.1	5.7	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.8	11.0	27.9	3.1	5.7	2.7
LOS	C	B	C	A	A	A
Approach Delay	18.3			4.8	5.4	
Approach LOS	B			A	A	

Intersection Summary

Cycle Length: 75
 Actuated Cycle Length: 64.3
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.32
 Intersection Signal Delay: 6.4
 Intersection Capacity Utilization 38.5%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service A

Splits and Phases: 2: Redlands Bl & Cottonwood Av



Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
2: Redlands Bl & Cottonwood Av

EP Conditions AM Peak Hour
HCM 6th Signalized Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↶	↷	↶	↷	↷	↶
Traffic Volume (veh/h)	40	52	34	452	319	31
Future Volume (veh/h)	40	52	34	452	319	31
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	42	55	36	476	336	33
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	164	146	93	1456	1237	1048
Arrive On Green	0.09	0.09	0.05	0.78	0.66	0.66
Sat Flow, veh/h	1781	1585	1781	1870	1870	1585
Grp Volume(v), veh/h	42	55	36	476	336	33
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1870	1870	1585
Q Serve(g_s), s	1.4	2.0	1.2	4.7	4.6	0.4
Cycle Q Clear(g_c), s	1.4	2.0	1.2	4.7	4.6	0.4
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	164	146	93	1456	1237	1048
V/C Ratio(X)	0.26	0.38	0.39	0.33	0.27	0.03
Avail Cap(c_a), veh/h	549	488	231	1456	1237	1048
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.0	26.3	28.3	2.0	4.3	3.6
Incr Delay (d2), s/veh	0.8	1.6	2.6	0.6	0.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	1.9	0.5	0.2	1.0	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	26.9	27.9	30.9	2.6	4.9	3.7
LnGrp LOS	C	C	C	A	A	A
Approach Vol, veh/h	97			512	369	
Approach Delay, s/veh	27.5			4.6	4.8	
Approach LOS	C			A	A	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		52.0		9.7	7.2	44.8
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		48.0		19.0	8.0	36.0
Max Q Clear Time (g_c+I1), s		6.7		4.0	3.2	6.6
Green Ext Time (p_c), s		2.8		0.2	0.0	1.9
Intersection Summary						
HCM 6th Ctrl Delay			6.9			
HCM 6th LOS			A			

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
3: Redlands BI & Alessandro BI

EP Conditions AM Peak Hour
HCM 6th AWSC

Intersection

Intersection Delay, s/veh 39.8

Intersection LOS E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕		↕			↕	↕		↕	
Traffic Vol, veh/h	53	54	27	70	154	11	35	400	77	17	276	92
Future Vol, veh/h	53	54	27	70	154	11	35	400	77	17	276	92
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	58	59	29	76	167	12	38	435	84	18	300	100
Number of Lanes	0	1	1	0	1	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	1	2
HCM Control Delay	14.6	23.1	52.3	42.1
HCM LOS	B	C	F	E

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	8%	0%	50%	0%	30%	4%
Vol Thru, %	92%	0%	50%	0%	66%	72%
Vol Right, %	0%	100%	0%	100%	5%	24%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	435	77	107	27	235	385
LT Vol	35	0	53	0	70	17
Through Vol	400	0	54	0	154	276
RT Vol	0	77	0	27	11	92
Lane Flow Rate	473	84	116	29	255	418
Geometry Grp	7	7	7	7	6	6
Degree of Util (X)	0.967	0.153	0.29	0.065	0.595	0.865
Departure Headway (Hd)	7.362	6.602	8.99	8.006	8.381	7.443
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	496	547	399	446	429	485
Service Time	5.062	4.302	6.76	5.774	6.442	5.497
HCM Lane V/C Ratio	0.954	0.154	0.291	0.065	0.594	0.862
HCM Control Delay	59.7	10.5	15.4	11.3	23.1	42.1
HCM Lane LOS	F	B	C	B	C	E
HCM 95th-tile Q	12.3	0.5	1.2	0.2	3.8	9.1

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
4: Redlands Bl & Cactus Av

EP Conditions AM Peak Hour
HCM 6th AWSC

Intersection

Intersection Delay, s/veh 14.6

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕	↕		↕			↕↕	↕		↕	↕
Traffic Vol, veh/h	127	7	72	1	14	21	21	347	0	3	279	108
Future Vol, veh/h	127	7	72	1	14	21	21	347	0	3	279	108
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	144	8	82	1	16	24	24	394	0	3	317	123
Number of Lanes	0	2	1	0	1	0	0	2	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	3	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	3	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	1	3
HCM Control Delay	12.2	11.1	14.4	16.3
HCM LOS	B	B	B	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	SBLn1	SBLn2
Vol Left, %	15%	0%	0%	98%	0%	0%	3%	1%	0%
Vol Thru, %	85%	100%	100%	2%	100%	0%	39%	99%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	58%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	137	231	0	129	5	72	36	282	108
LT Vol	21	0	0	127	0	0	1	3	0
Through Vol	116	231	0	2	5	0	14	279	0
RT Vol	0	0	0	0	0	72	21	0	108
Lane Flow Rate	155	263	0	147	5	82	41	320	123
Geometry Grp	8	8	8	7	7	7	8	8	8
Degree of Util (X)	0.291	0.486	0	0.304	0.01	0.142	0.087	0.589	0.201
Departure Headway (Hd)	6.735	6.657	6.657	7.453	6.953	6.241	7.641	6.622	5.908
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	531	539	0	481	512	571	472	542	603
Service Time	4.516	4.438	4.438	5.234	4.734	4.021	5.341	4.403	3.688
HCM Lane V/C Ratio	0.292	0.488	0	0.306	0.01	0.144	0.087	0.59	0.204
HCM Control Delay	12.3	15.6	9.4	13.5	9.8	10.1	11.1	18.6	10.2
HCM Lane LOS	B	C	N	B	A	B	B	C	B
HCM 95th-tile Q	1.2	2.6	0	1.3	0	0.5	0.3	3.8	0.7

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
5: Merwin St & Alessandro Bl

EP Conditions AM Peak Hour
HCM 6th TWSC

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	135	2	0	213	1	4	0	1	0	0	4
Future Vol, veh/h	1	135	2	0	213	1	4	0	1	0	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	150	2	0	237	1	4	0	1	0	0	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	238	0	0	152	0	0	393	391	151	392	392	238
Stage 1	-	-	-	-	-	-	153	153	-	238	238	-
Stage 2	-	-	-	-	-	-	240	238	-	154	154	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1329	-	-	1429	-	-	566	545	895	567	544	801
Stage 1	-	-	-	-	-	-	849	771	-	765	708	-
Stage 2	-	-	-	-	-	-	763	708	-	848	770	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1329	-	-	1429	-	-	563	544	895	566	543	801
Mov Cap-2 Maneuver	-	-	-	-	-	-	563	544	-	566	543	-
Stage 1	-	-	-	-	-	-	848	770	-	764	708	-
Stage 2	-	-	-	-	-	-	759	708	-	846	769	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0	11	9.5
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	608	1329	-	-	1429	-	-	801
HCM Lane V/C Ratio	0.009	0.001	-	-	-	-	-	0.006
HCM Control Delay (s)	11	7.7	0	-	0	-	-	9.5
HCM Lane LOS	B	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
6: Redlands Bl & Dwy 1

EP Conditions AM Peak Hour
HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕			↖
Traffic Vol, veh/h	0	50	383	16	0	373
Future Vol, veh/h	0	50	383	16	0	373
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	54	416	17	0	405

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	-	217	0	0	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	6.93	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.319	-	-	-
Pot Cap-1 Maneuver	0	788	-	-	0
Stage 1	0	-	-	-	0
Stage 2	0	-	-	-	0
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	-	788	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.9	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	-	788
HCM Lane V/C Ratio	-	-	0.069
HCM Control Delay (s)	-	-	9.9
HCM Lane LOS	-	-	A
HCM 95th %tile Q(veh)	-	-	0.2

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
7: Dwy 2 & Alessandro BI

EP Conditions AM Peak Hour
HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↑		↗
Traffic Vol, veh/h	115	41	0	221	0	4
Future Vol, veh/h	115	41	0	221	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	125	45	0	240	0	4
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	-	-	-	148
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	-	-	0	-	0	899
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	899
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	0	9			
HCM LOS						A
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT		
Capacity (veh/h)	899	-	-	-		
HCM Lane V/C Ratio	0.005	-	-	-		
HCM Control Delay (s)	9	-	-	-		
HCM Lane LOS	A	-	-	-		
HCM 95th %tile Q(veh)	0	-	-	-		

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
1: Wilmot St & Alessandro BI

EP Conditions PM Peak Hour
HCM 6th TWSC

Intersection												
Int Delay, s/veh	1.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	16	225	11	13	138	3	5	7	9	3	2	18
Future Vol, veh/h	16	225	11	13	138	3	5	7	9	3	2	18
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	19	262	13	15	160	3	6	8	10	3	2	21

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	163	0	0	275	0	0	510	500	269	508	505	162
Stage 1	-	-	-	-	-	-	307	307	-	192	192	-
Stage 2	-	-	-	-	-	-	203	193	-	316	313	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1416	-	-	1288	-	-	474	473	770	475	470	883
Stage 1	-	-	-	-	-	-	703	661	-	810	742	-
Stage 2	-	-	-	-	-	-	799	741	-	695	657	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1416	-	-	1288	-	-	451	459	770	452	456	883
Mov Cap-2 Maneuver	-	-	-	-	-	-	451	459	-	452	456	-
Stage 1	-	-	-	-	-	-	692	650	-	797	732	-
Stage 2	-	-	-	-	-	-	767	731	-	666	646	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.5			0.7			11.8			10.1		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	552	1416	-	-	1288	-	-	732
HCM Lane V/C Ratio	0.044	0.013	-	-	0.012	-	-	0.037
HCM Control Delay (s)	11.8	7.6	0	-	7.8	0	-	10.1
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
2: Redlands Bl & Cottonwood Av

EP Conditions PM Peak Hour
Timings



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗	↖	↑	↑	↗
Traffic Volume (vph)	26	32	28	337	472	52
Future Volume (vph)	26	32	28	337	472	52
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	22.5	22.5	11.5	22.5	36.5	36.5
Total Split (s)	23.0	23.0	12.0	52.0	40.0	40.0
Total Split (%)	30.7%	30.7%	16.0%	69.3%	53.3%	53.3%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	Max	Max	Max
Act Effct Green (s)	7.2	7.2	7.2	55.4	50.7	50.7
Actuated g/C Ratio	0.11	0.11	0.11	0.85	0.78	0.78
v/c Ratio	0.13	0.16	0.14	0.21	0.33	0.04
Control Delay	27.0	12.2	27.1	2.1	5.6	2.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.0	12.2	27.1	2.1	5.6	2.2
LOS	C	B	C	A	A	A
Approach Delay	18.8			4.0	5.3	
Approach LOS	B			A	A	

Intersection Summary

Cycle Length: 75
 Actuated Cycle Length: 64.8
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.33
 Intersection Signal Delay: 5.6
 Intersection Capacity Utilization 37.3%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service A













Splits and Phases: 2: Redlands Bl & Cottonwood Av



Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
2: Redlands Bl & Cottonwood Av

EP Conditions PM Peak Hour
HCM 6th Signalized Intersection Summary

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	26	32	28	337	472	52
Future Volume (veh/h)	26	32	28	337	472	52
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	26	32	28	340	477	53
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	128	114	77	1488	1282	1087
Arrive On Green	0.07	0.07	0.04	0.80	0.69	0.69
Sat Flow, veh/h	1781	1585	1781	1870	1870	1585
Grp Volume(v), veh/h	26	32	28	340	477	53
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1870	1870	1585
Q Serve(g_s), s	0.8	1.2	0.9	2.7	6.5	0.7
Cycle Q Clear(g_c), s	0.8	1.2	0.9	2.7	6.5	0.7
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	128	114	77	1488	1282	1087
V/C Ratio(X)	0.20	0.28	0.36	0.23	0.37	0.05
Avail Cap(c_a), veh/h	561	499	236	1488	1282	1087
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.4	26.5	28.1	1.5	4.0	3.1
Incr Delay (d2), s/veh	0.8	1.3	2.8	0.4	0.8	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	1.1	0.4	0.1	1.2	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	27.1	27.8	30.9	1.9	4.8	3.2
LnGrp LOS	C	C	C	A	A	A
Approach Vol, veh/h	58			368	530	
Approach Delay, s/veh	27.5			4.1	4.7	
Approach LOS	C			A	A	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		52.0		8.4	6.6	45.4
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		48.0		19.0	8.0	36.0
Max Q Clear Time (g_c+I1), s		4.7		3.2	2.9	8.5
Green Ext Time (p_c), s		1.9		0.1	0.0	2.9
Intersection Summary						
HCM 6th Ctrl Delay			5.8			
HCM 6th LOS			A			

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
3: Redlands BI & Alessandro BI

EP Conditions PM Peak Hour
HCM 6th AWSC

Intersection

Intersection Delay, s/veh 34.5

Intersection LOS D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕			↕	↗		↕	
Traffic Vol, veh/h	79	136	22	47	60	18	36	274	67	40	393	56
Future Vol, veh/h	79	136	22	47	60	18	36	274	67	40	393	56
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	82	142	23	49	63	19	38	285	70	42	409	58
Number of Lanes	0	1	1	0	1	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	1	2
HCM Control Delay	17.8	15.2	20	58.8
HCM LOS	C	C	C	F

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	12%	0%	37%	0%	38%	8%
Vol Thru, %	88%	0%	63%	0%	48%	80%
Vol Right, %	0%	100%	0%	100%	14%	11%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	310	67	215	22	125	489
LT Vol	36	0	79	0	47	40
Through Vol	274	0	136	0	60	393
RT Vol	0	67	0	22	18	56
Lane Flow Rate	323	70	224	23	130	509
Geometry Grp	7	7	7	7	6	6
Degree of Util (X)	0.644	0.124	0.499	0.045	0.307	0.971
Departure Headway (Hd)	7.176	6.398	8.024	7.113	8.496	6.86
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	501	556	448	500	426	525
Service Time	4.962	4.183	5.812	4.9	6.496	4.936
HCM Lane V/C Ratio	0.645	0.126	0.5	0.046	0.305	0.97
HCM Control Delay	22.2	10.1	18.6	10.2	15.2	58.8
HCM Lane LOS	C	B	C	B	C	F
HCM 95th-tile Q	4.5	0.4	2.7	0.1	1.3	12.8

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
4: Redlands Bl & Cactus Av

EP Conditions PM Peak Hour
HCM 6th AWSC

Intersection

Intersection Delay, s/veh 12.9

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕	↗		↕			↕↕	↗		↕	↗
Traffic Vol, veh/h	163	14	33	0	6	10	11	187	0	18	304	108
Future Vol, veh/h	163	14	33	0	6	10	11	187	0	18	304	108
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	172	15	35	0	6	11	12	197	0	19	320	114
Number of Lanes	0	2	1	0	1	0	0	2	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	3	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	3	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	1	3
HCM Control Delay	12.2	9.7	10.8	14.3
HCM LOS	B	A	B	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	SBLn1	SBLn2
Vol Left, %	15%	0%	0%	97%	0%	0%	0%	6%	0%
Vol Thru, %	85%	100%	100%	3%	100%	0%	38%	94%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	62%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	73	125	0	168	9	33	16	322	108
LT Vol	11	0	0	163	0	0	0	18	0
Through Vol	62	125	0	5	9	0	6	304	0
RT Vol	0	0	0	0	0	33	10	0	108
Lane Flow Rate	77	131	0	176	10	35	17	339	114
Geometry Grp	8	8	8	7	7	7	8	8	8
Degree of Util (X)	0.139	0.234	0	0.335	0.017	0.054	0.032	0.561	0.165
Departure Headway (Hd)	6.501	6.426	6.426	6.833	6.341	5.633	6.738	5.962	5.229
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	551	558	0	526	564	635	530	607	686
Service Time	4.247	4.171	4.171	4.572	4.08	3.372	4.496	3.697	2.963
HCM Lane V/C Ratio	0.14	0.235	0	0.335	0.018	0.055	0.032	0.558	0.166
HCM Control Delay	10.3	11.1	9.2	13	9.2	8.7	9.7	16.1	9
HCM Lane LOS	B	B	N	B	A	A	A	C	A
HCM 95th-tile Q	0.5	0.9	0	1.5	0.1	0.2	0.1	3.5	0.6

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
5: Merwin St & Alessandro Bl

EP Conditions PM Peak Hour
HCM 6th TWSC

Intersection												
Int Delay, s/veh	0.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	209	4	2	113	3	1	0	1	0	0	1
Future Vol, veh/h	2	209	4	2	113	3	1	0	1	0	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	227	4	2	123	3	1	0	1	0	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	126	0	0	231	0	0	362	363	229	363	364	125
Stage 1	-	-	-	-	-	-	233	233	-	129	129	-
Stage 2	-	-	-	-	-	-	129	130	-	234	235	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1460	-	-	1337	-	-	594	565	810	593	564	926
Stage 1	-	-	-	-	-	-	770	712	-	875	789	-
Stage 2	-	-	-	-	-	-	875	789	-	769	710	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1460	-	-	1337	-	-	592	563	810	591	562	926
Mov Cap-2 Maneuver	-	-	-	-	-	-	592	563	-	591	562	-
Stage 1	-	-	-	-	-	-	768	711	-	873	787	-
Stage 2	-	-	-	-	-	-	872	787	-	766	709	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.1			10.3			8.9		
HCM LOS							B			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	684	1460	-	-	1337	-	-	926
HCM Lane V/C Ratio	0.003	0.001	-	-	0.002	-	-	0.001
HCM Control Delay (s)	10.3	7.5	0	-	7.7	0	-	8.9
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
6: Redlands Bl & Dwy 1

EP Conditions PM Peak Hour
HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕			↖
Traffic Vol, veh/h	0	64	252	21	0	462
Future Vol, veh/h	0	64	252	21	0	462
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	70	274	23	0	502
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	-	149	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.93	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.319	-	-	-	-
Pot Cap-1 Maneuver	0	871	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	871	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	9.5	0	0			
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT			
Capacity (veh/h)	-	-	871			
HCM Lane V/C Ratio	-	-	0.08			
HCM Control Delay (s)	-	-	9.5			
HCM Lane LOS	-	-	A			
HCM 95th %tile Q(veh)	-	-	0.3			

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
7: Dwy 2 & Alessandro BI

EP Conditions PM Peak Hour
HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↑		↗
Traffic Vol, veh/h	184	56	0	115	0	6
Future Vol, veh/h	184	56	0	115	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	200	61	0	125	0	7
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	-	-	-	231
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	-	-	0	-	0	808
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	808
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	0	9.5			
HCM LOS						A
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT		
Capacity (veh/h)	808	-	-	-		
HCM Lane V/C Ratio	0.008	-	-	-		
HCM Control Delay (s)	9.5	-	-	-		
HCM Lane LOS	A	-	-	-		
HCM 95th %tile Q(veh)	0	-	-	-		

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

EP CONDITIONS WITH IMPROVEMENTS

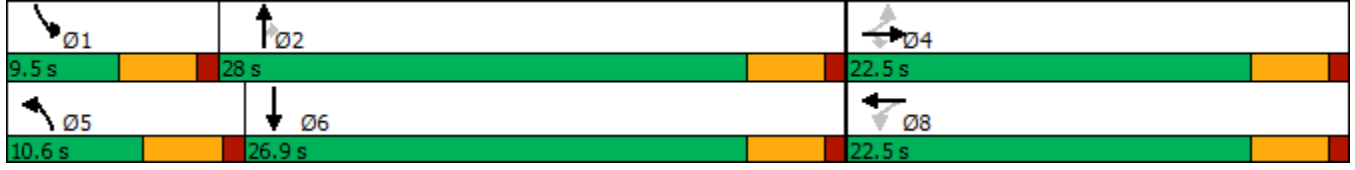
Redlands Alessandro TIA
3: Redlands BI & Alessandro BI

Mitigated EP Conditions AM Peak Hour
Timings

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	53	54	27	70	154	35	400	77	17	276
Future Volume (vph)	53	54	27	70	154	35	400	77	17	276
Turn Type	Perm	NA	Perm	Perm	NA	Prot	NA	Perm	Prot	NA
Protected Phases		4			8	5	2		1	6
Permitted Phases	4		4	8				2		
Detector Phase	4	4	4	8	8	5	2	2	1	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5
Total Split (s)	22.5	22.5	22.5	22.5	22.5	10.6	28.0	28.0	9.5	26.9
Total Split (%)	37.5%	37.5%	37.5%	37.5%	37.5%	17.7%	46.7%	46.7%	15.8%	44.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	Min	None	Min
Act Effct Green (s)		12.1	12.1		12.1	6.4	19.2	19.2	5.4	17.4
Actuated g/C Ratio		0.29	0.29		0.29	0.15	0.45	0.45	0.13	0.41
v/c Ratio		0.28	0.05		0.55	0.14	0.52	0.11	0.08	0.53
Control Delay		15.3	0.2		19.2	22.4	12.3	2.3	23.4	14.0
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		15.3	0.2		19.2	22.4	12.3	2.3	23.4	14.0
LOS		B	A		B	C	B	A	C	B
Approach Delay		12.3			19.2		11.5			14.4
Approach LOS		B			B		B			B

Intersection Summary
 Cycle Length: 60
 Actuated Cycle Length: 42.4
 Natural Cycle: 55
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.55
 Intersection Signal Delay: 13.9
 Intersection LOS: B
 Intersection Capacity Utilization 55.8%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 3: Redlands BI & Alessandro BI



Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
3: Redlands BI & Alessandro BI

Mitigated EP Conditions AM Peak Hour
HCM 6th Signalized Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	53	54	27	70	154	11	35	400	77	17	276	92
Future Volume (veh/h)	53	54	27	70	154	11	35	400	77	17	276	92
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	58	59	29	76	167	12	38	435	84	18	300	100
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	300	244	353	228	274	18	80	630	534	41	423	141
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	0.04	0.34	0.34	0.02	0.32	0.32
Sat Flow, veh/h	602	1096	1585	376	1234	79	1781	1870	1585	1781	1342	447
Grp Volume(v), veh/h	117	0	29	255	0	0	38	435	84	18	0	400
Grp Sat Flow(s),veh/h/ln	1698	0	1585	1689	0	0	1781	1870	1585	1781	0	1790
Q Serve(g_s), s	0.0	0.0	0.5	2.7	0.0	0.0	0.7	6.5	1.2	0.3	0.0	6.4
Cycle Q Clear(g_c), s	1.7	0.0	0.5	4.4	0.0	0.0	0.7	6.5	1.2	0.3	0.0	6.4
Prop In Lane	0.50		1.00	0.30		0.05	1.00		1.00	1.00		0.25
Lane Grp Cap(c), veh/h	544	0	353	520	0	0	80	630	534	41	0	564
V/C Ratio(X)	0.22	0.00	0.08	0.49	0.00	0.00	0.48	0.69	0.16	0.44	0.00	0.71
Avail Cap(c_a), veh/h	1035	0	883	1071	0	0	336	1360	1152	276	0	1240
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	10.4	0.0	10.0	11.4	0.0	0.0	15.1	9.3	7.5	15.6	0.0	9.8
Incr Delay (d2), s/veh	0.2	0.0	0.1	0.7	0.0	0.0	4.4	1.4	0.1	7.2	0.0	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.1	1.2	0.0	0.0	0.3	1.5	0.2	0.2	0.0	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.6	0.0	10.1	12.1	0.0	0.0	19.4	10.6	7.6	22.7	0.0	11.4
LnGrp LOS	B	A	B	B	A	A	B	B	A	C	A	B
Approach Vol, veh/h		146			255			557				418
Approach Delay, s/veh		10.5			12.1			10.8				11.9
Approach LOS		B			B			B				B
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.2	15.4		11.7	5.9	14.7		11.7				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.0	23.5		18.0	6.1	22.4		18.0				
Max Q Clear Time (g_c+I1), s	2.3	8.5		3.7	2.7	8.4		6.4				
Green Ext Time (p_c), s	0.0	2.3		0.5	0.0	1.8		1.0				
Intersection Summary												
HCM 6th Ctrl Delay				11.3								
HCM 6th LOS				B								

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
3: Redlands BI & Alessandro BI

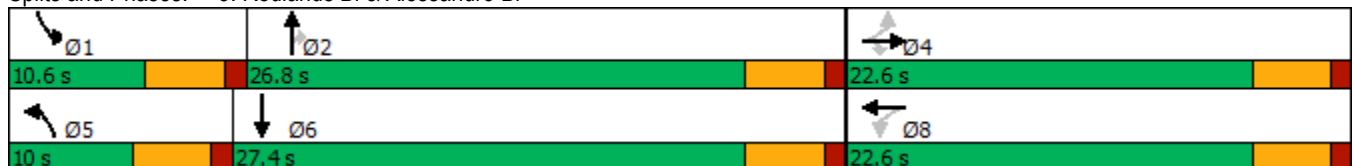
Mitigated EP Conditions PM Peak Hour
Timings

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	79	136	22	47	60	36	274	67	40	393
Future Volume (vph)	79	136	22	47	60	36	274	67	40	393
Turn Type	Perm	NA	Perm	Perm	NA	Prot	NA	Perm	Prot	NA
Protected Phases		4			8	5	2		1	6
Permitted Phases	4		4	8				2		
Detector Phase	4	4	4	8	8	5	2	2	1	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5
Total Split (s)	22.6	22.6	22.6	22.6	22.6	10.0	26.8	26.8	10.6	27.4
Total Split (%)	37.7%	37.7%	37.7%	37.7%	37.7%	16.7%	44.7%	44.7%	17.7%	45.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	Min	None	Min
Act Effct Green (s)		12.0	12.0		12.0	6.0	18.4	18.4	6.4	18.6
Actuated g/C Ratio		0.28	0.28		0.28	0.14	0.42	0.42	0.15	0.43
v/c Ratio		0.51	0.04		0.31	0.16	0.36	0.10	0.16	0.59
Control Delay		19.1	0.2		14.7	23.4	12.4	1.8	22.8	15.0
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		19.1	0.2		14.7	23.4	12.4	1.8	22.8	15.0
LOS		B	A		B	C	B	A	C	B
Approach Delay		17.4			14.7		11.6			15.7
Approach LOS		B			B		B			B

Intersection Summary

Cycle Length: 60
 Actuated Cycle Length: 43.3
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.59
 Intersection Signal Delay: 14.7
 Intersection LOS: B
 Intersection Capacity Utilization 61.6%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 3: Redlands BI & Alessandro BI



Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
3: Redlands BI & Alessandro BI

Mitigated EP Conditions PM Peak Hour
HCM 6th Signalized Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	79	136	22	47	60	18	36	274	67	40	393	56
Future Volume (veh/h)	79	136	22	47	60	18	36	274	67	40	393	56
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	82	142	23	49	62	19	38	285	70	42	409	58
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	252	241	309	199	146	33	79	646	547	86	560	79
Arrive On Green	0.19	0.19	0.19	0.19	0.19	0.19	0.04	0.35	0.35	0.05	0.35	0.35
Sat Flow, veh/h	526	1239	1585	247	752	171	1781	1870	1585	1781	1602	227
Grp Volume(v), veh/h	224	0	23	130	0	0	38	285	70	42	0	467
Grp Sat Flow(s),veh/h/ln	1765	0	1585	1169	0	0	1781	1870	1585	1781	0	1829
Q Serve(g_s), s	0.0	0.0	0.4	0.4	0.0	0.0	0.7	3.9	1.0	0.8	0.0	7.3
Cycle Q Clear(g_c), s	3.6	0.0	0.4	4.1	0.0	0.0	0.7	3.9	1.0	0.8	0.0	7.3
Prop In Lane	0.37		1.00	0.38		0.15	1.00		1.00	1.00		0.12
Lane Grp Cap(c), veh/h	494	0	309	379	0	0	79	646	547	86	0	639
V/C Ratio(X)	0.45	0.00	0.07	0.34	0.00	0.00	0.48	0.44	0.13	0.49	0.00	0.73
Avail Cap(c_a), veh/h	1072	0	874	923	0	0	299	1271	1077	331	0	1277
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.1	0.0	10.8	11.7	0.0	0.0	15.3	8.3	7.4	15.2	0.0	9.3
Incr Delay (d2), s/veh	0.7	0.0	0.1	0.5	0.0	0.0	4.4	0.5	0.1	4.2	0.0	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	0.1	0.6	0.0	0.0	0.3	0.8	0.2	0.3	0.0	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.8	0.0	10.9	12.2	0.0	0.0	19.7	8.8	7.5	19.4	0.0	11.0
LnGrp LOS	B	A	B	B	A	A	B	A	A	B	A	B
Approach Vol, veh/h		247			130			393			509	
Approach Delay, s/veh		12.6			12.2			9.6			11.7	
Approach LOS		B			B			A			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.1	15.8		10.9	6.0	16.0		10.9				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	6.1	22.3		18.1	5.5	22.9		18.1				
Max Q Clear Time (g_c+I1), s	2.8	5.9		5.6	2.7	9.3		6.1				
Green Ext Time (p_c), s	0.0	1.5		1.0	0.0	2.1		0.4				
Intersection Summary												
HCM 6th Ctrl Delay				11.3								
HCM 6th LOS				B								

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

EAC CONDITIONS

Redlands Alessandro TIA
1: Wilmot St & Alessandro Bl

EAC Conditions AM Peak Hour
HCM 6th TWSC

Intersection												
Int Delay, s/veh	1.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	20	133	7	6	333	3	11	6	22	7	4	24
Future Vol, veh/h	20	133	7	6	333	3	11	6	22	7	4	24
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	143	8	6	358	3	12	6	24	8	4	26

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	361	0	0	151	0	0	578	564	147	578	567	360
Stage 1	-	-	-	-	-	-	191	191	-	372	372	-
Stage 2	-	-	-	-	-	-	387	373	-	206	195	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1198	-	-	1430	-	-	427	435	900	427	433	684
Stage 1	-	-	-	-	-	-	811	742	-	648	619	-
Stage 2	-	-	-	-	-	-	637	618	-	796	739	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1198	-	-	1430	-	-	400	424	900	403	422	684
Mov Cap-2 Maneuver	-	-	-	-	-	-	400	424	-	403	422	-
Stage 1	-	-	-	-	-	-	795	727	-	635	616	-
Stage 2	-	-	-	-	-	-	606	615	-	753	724	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1			0.1			11.6			11.8		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	590	1198	-	-	1430	-	-	565
HCM Lane V/C Ratio	0.071	0.018	-	-	0.005	-	-	0.067
HCM Control Delay (s)	11.6	8.1	0	-	7.5	0	-	11.8
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.2	0.1	-	-	0	-	-	0.2

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
2: Redlands Bl & Cottonwood Av

EAC Conditions AM Peak Hour
Timings



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗	↖	↑	↑	↗
Traffic Volume (vph)	48	55	40	542	364	36
Future Volume (vph)	48	55	40	542	364	36
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	22.5	22.5	11.5	22.5	36.5	36.5
Total Split (s)	23.0	23.0	12.0	52.0	40.0	40.0
Total Split (%)	30.7%	30.7%	16.0%	69.3%	53.3%	53.3%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	Max	Max	Max
Act Effect Green (s)	7.8	7.8	7.3	51.7	47.0	47.0
Actuated g/C Ratio	0.12	0.12	0.11	0.80	0.73	0.73
v/c Ratio	0.24	0.24	0.21	0.38	0.28	0.03
Control Delay	28.2	10.8	28.5	3.5	6.1	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.2	10.8	28.5	3.5	6.1	2.7
LOS	C	B	C	A	A	A
Approach Delay	18.9			5.3	5.8	
Approach LOS	B			A	A	

Intersection Summary

Cycle Length: 75
 Actuated Cycle Length: 64.6
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.38
 Intersection Signal Delay: 6.7
 Intersection LOS: A
 Intersection Capacity Utilization 41.0%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 2: Redlands Bl & Cottonwood Av



Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
2: Redlands Bl & Cottonwood Av

EAC Conditions AM Peak Hour
HCM 6th Signalized Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↶	↷	↶	↷	↷	↶
Traffic Volume (veh/h)	48	55	40	542	364	36
Future Volume (veh/h)	48	55	40	542	364	36
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	51	58	42	571	383	38
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	170	152	104	1450	1220	1034
Arrive On Green	0.10	0.10	0.06	0.78	0.65	0.65
Sat Flow, veh/h	1781	1585	1781	1870	1870	1585
Grp Volume(v), veh/h	51	58	42	571	383	38
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1870	1870	1585
Q Serve(g_s), s	1.7	2.1	1.4	6.1	5.5	0.5
Cycle Q Clear(g_c), s	1.7	2.1	1.4	6.1	5.5	0.5
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	170	152	104	1450	1220	1034
V/C Ratio(X)	0.30	0.38	0.41	0.39	0.31	0.04
Avail Cap(c_a), veh/h	547	486	230	1450	1220	1034
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.1	26.3	28.1	2.3	4.7	3.8
Incr Delay (d2), s/veh	1.0	1.6	2.5	0.8	0.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.1	0.6	0.4	1.3	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	27.0	27.9	30.7	3.1	5.4	3.9
LnGrp LOS	C	C	C	A	A	A
Approach Vol, veh/h				613	421	
Approach Delay, s/veh				5.0	5.2	
Approach LOS				A	A	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		52.0		9.9	7.6	44.4
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		48.0		19.0	8.0	36.0
Max Q Clear Time (g_c+I1), s		8.1		4.1	3.4	7.5
Green Ext Time (p_c), s		3.6		0.2	0.0	2.2
Intersection Summary						
HCM 6th Ctrl Delay			7.2			
HCM 6th LOS			A			

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
3: Redlands BI & Alessandro BI

EAC Conditions AM Peak Hour
HCM 6th AWSC

Intersection

Intersection Delay, s/veh84.5

Intersection LOS F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕		↕			↕	↕		↕	
Traffic Vol, veh/h	59	62	30	84	216	64	21	432	87	26	305	103
Future Vol, veh/h	59	62	30	84	216	64	21	432	87	26	305	103
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	64	67	33	91	235	70	23	470	95	28	332	112
Number of Lanes	0	1	1	0	1	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	2
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	1	2	2	1
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	2	1	1	2
HCM Control Delay	17.9	64.2	100.7	104.5
HCM LOS	C	F	F	F

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	5%	0%	49%	0%	23%	6%
Vol Thru, %	95%	0%	51%	0%	59%	70%
Vol Right, %	0%	100%	0%	100%	18%	24%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	453	87	121	30	364	434
LT Vol	21	0	59	0	84	26
Through Vol	432	0	62	0	216	305
RT Vol	0	87	0	30	64	103
Lane Flow Rate	492	95	132	33	396	472
Geometry Grp	7	7	7	7	6	6
Degree of Util (X)	1.142	0.2	0.359	0.081	0.947	1.101
Departure Headway (Hd)	8.736	7.984	10.561	9.568	9.24	8.84
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	419	452	343	377	396	415
Service Time	6.436	5.684	8.261	7.268	7.24	6.84
HCM Lane V/C Ratio	1.174	0.21	0.385	0.088	1	1.137
HCM Control Delay	117.6	12.7	19.1	13.1	64.2	104.5
HCM Lane LOS	F	B	C	B	F	F
HCM 95th-tile Q	17.4	0.7	1.6	0.3	10.5	15.8

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
4: Redlands Bl & Cactus Av

EAC Conditions AM Peak Hour
HCM 6th AWSC

Intersection

Intersection Delay, s/veh 17.9

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕	↗		↕			↕↕	↗		↗	↗
Traffic Vol, veh/h	148	7	77	1	15	22	23	381	0	3	308	129
Future Vol, veh/h	148	7	77	1	15	22	23	381	0	3	308	129
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	168	8	88	1	17	25	26	433	0	3	350	147
Number of Lanes	0	2	1	0	1	0	0	2	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	3	2	3
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	2	3	3	1
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	3	2	1	3
HCM Control Delay	13.6	11.8	16.9	21.6
HCM LOS	B	B	C	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	SBLn1	SBLn2
Vol Left, %	15%	0%	0%	98%	0%	0%	3%	1%	0%
Vol Thru, %	85%	100%	100%	2%	100%	0%	39%	95%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	58%	4%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	150	254	0	150	5	77	38	324	116
LT Vol	23	0	0	148	0	0	1	3	0
Through Vol	127	254	0	2	5	0	15	308	0
RT Vol	0	0	0	0	0	77	22	13	116
Lane Flow Rate	170	289	0	171	5	88	43	368	132
Geometry Grp	8	8	8	7	7	7	8	8	8
Degree of Util (X)	0.34	0.569	0	0.372	0.011	0.161	0.098	0.715	0.231
Departure Headway (Hd)	7.174	7.096	7.096	7.849	7.346	6.631	8.17	6.99	6.302
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	503	508	0	460	488	542	438	519	570
Service Time	4.908	4.83	4.83	5.585	5.082	4.366	5.924	4.723	4.035
HCM Lane V/C Ratio	0.338	0.569	0	0.372	0.01	0.162	0.098	0.709	0.232
HCM Control Delay	13.6	18.8	9.8	15.2	10.2	10.6	11.8	25.4	10.9
HCM Lane LOS	B	C	N	C	B	B	B	D	B
HCM 95th-tile Q	1.5	3.5	0	1.7	0	0.6	0.3	5.7	0.9

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
5: Merwin St & Alessandro Bl

EAC Conditions AM Peak Hour
HCM 6th TWSC

Intersection												
Int Delay, s/veh	1.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	149	17	2	235	1	56	0	8	0	0	4
Future Vol, veh/h	1	149	17	2	235	1	56	0	8	0	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	166	19	2	261	1	62	0	9	0	0	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	262	0	0	185	0	0	446	444	176	448	453	262
Stage 1	-	-	-	-	-	-	178	178	-	266	266	-
Stage 2	-	-	-	-	-	-	268	266	-	182	187	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1302	-	-	1390	-	-	523	508	867	521	503	777
Stage 1	-	-	-	-	-	-	824	752	-	739	689	-
Stage 2	-	-	-	-	-	-	738	689	-	820	745	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1302	-	-	1390	-	-	519	506	867	514	501	777
Mov Cap-2 Maneuver	-	-	-	-	-	-	519	506	-	514	501	-
Stage 1	-	-	-	-	-	-	823	751	-	738	688	-
Stage 2	-	-	-	-	-	-	732	688	-	811	744	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.1			12.6			9.7		
HCM LOS							B			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	546	1302	-	-	1390	-	-	777
HCM Lane V/C Ratio	0.13	0.001	-	-	0.002	-	-	0.006
HCM Control Delay (s)	12.6	7.8	0	-	7.6	0	-	9.7
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.4	0	-	-	0	-	-	0

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
1: Wilmot St & Alessandro Bl

EAC Conditions PM Peak Hour
HCM 6th TWSC

Intersection												
Int Delay, s/veh	1.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	20	290	12	17	170	1	6	11	13	1	4	22
Future Vol, veh/h	20	290	12	17	170	1	6	11	13	1	4	22
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	23	337	14	20	198	1	7	13	15	1	5	26

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	199	0	0	351	0	0	644	629	344	643	636	199
Stage 1	-	-	-	-	-	-	390	390	-	239	239	-
Stage 2	-	-	-	-	-	-	254	239	-	404	397	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1373	-	-	1208	-	-	386	399	699	386	395	842
Stage 1	-	-	-	-	-	-	634	608	-	764	708	-
Stage 2	-	-	-	-	-	-	750	708	-	623	603	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1373	-	-	1208	-	-	360	383	699	357	379	842
Mov Cap-2 Maneuver	-	-	-	-	-	-	360	383	-	357	379	-
Stage 1	-	-	-	-	-	-	621	595	-	748	695	-
Stage 2	-	-	-	-	-	-	709	695	-	584	590	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.5			0.7			13.3			10.5		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	469	1373	-	-	1208	-	-	684
HCM Lane V/C Ratio	0.074	0.017	-	-	0.016	-	-	0.046
HCM Control Delay (s)	13.3	7.7	0	-	8	0	-	10.5
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.2	0.1	-	-	0.1	-	-	0.1

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
2: Redlands Bl & Cottonwood Av

EAC Conditions PM Peak Hour
Timings



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗	↖	↗	↗	↗
Traffic Volume (vph)	32	36	29	399	568	62
Future Volume (vph)	32	36	29	399	568	62
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	22.5	22.5	11.5	22.5	36.5	36.5
Total Split (s)	23.0	23.0	12.0	52.0	40.0	40.0
Total Split (%)	30.7%	30.7%	16.0%	69.3%	53.3%	53.3%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	Max	Max	Max
Act Effect Green (s)	7.3	7.3	7.2	55.4	50.7	50.7
Actuated g/C Ratio	0.11	0.11	0.11	0.85	0.78	0.78
v/c Ratio	0.16	0.17	0.15	0.25	0.39	0.05
Control Delay	27.3	12.0	27.3	2.3	6.4	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.3	12.0	27.3	2.3	6.4	2.1
LOS	C	B	C	A	A	A
Approach Delay	19.2			4.0	5.9	
Approach LOS	B			A	A	

Intersection Summary

Cycle Length: 75
 Actuated Cycle Length: 64.9
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.39
 Intersection Signal Delay: 6.0
 Intersection LOS: A
 Intersection Capacity Utilization 42.4%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 2: Redlands Bl & Cottonwood Av



Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
2: Redlands Bl & Cottonwood Av

EAC Conditions PM Peak Hour
HCM 6th Signalized Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↶	↷	↶	↷	↷	↶
Traffic Volume (veh/h)	32	36	29	399	568	62
Future Volume (veh/h)	32	36	29	399	568	62
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	32	36	29	403	574	63
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	140	125	79	1477	1271	1077
Arrive On Green	0.08	0.08	0.04	0.79	0.68	0.68
Sat Flow, veh/h	1781	1585	1781	1870	1870	1585
Grp Volume(v), veh/h	32	36	29	403	574	63
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1870	1870	1585
Q Serve(g_s), s	1.0	1.3	1.0	3.5	8.6	0.8
Cycle Q Clear(g_c), s	1.0	1.3	1.0	3.5	8.6	0.8
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	140	125	79	1477	1271	1077
V/C Ratio(X)	0.23	0.29	0.37	0.27	0.45	0.06
Avail Cap(c_a), veh/h	557	495	234	1477	1271	1077
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.3	26.4	28.2	1.7	4.5	3.3
Incr Delay (d2), s/veh	0.8	1.3	2.8	0.5	1.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.2	0.4	0.2	1.8	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	27.1	27.7	31.0	2.2	5.7	3.4
LnGrp LOS	C	C	C	A	A	A
Approach Vol, veh/h	68			432	637	
Approach Delay, s/veh	27.4			4.1	5.4	
Approach LOS	C			A	A	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		52.0		8.8	6.7	45.3
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		48.0		19.0	8.0	36.0
Max Q Clear Time (g_c+I1), s		5.5		3.3	3.0	10.6
Green Ext Time (p_c), s		2.3		0.1	0.0	3.6
Intersection Summary						
HCM 6th Ctrl Delay			6.2			
HCM 6th LOS			A			

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
3: Redlands BI & Alessandro BI

EAC Conditions PM Peak Hour
HCM 6th AWSC

Intersection

Intersection Delay, s/veh91.5

Intersection LOS F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔		↔			↔	↔		↔	
Traffic Vol, veh/h	88	185	24	56	96	54	18	290	81	90	434	63
Future Vol, veh/h	88	185	24	56	96	54	18	290	81	90	434	63
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	92	193	25	58	100	56	19	302	84	94	452	66
Number of Lanes	0	1	1	0	1	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	2
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	1	2	2	1
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	2	1	1	2
HCM Control Delay	27.5	23	26.6	191
HCM LOS	D	C	D	F

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	6%	0%	32%	0%	27%	15%
Vol Thru, %	94%	0%	68%	0%	47%	74%
Vol Right, %	0%	100%	0%	100%	26%	11%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	308	81	273	24	206	587
LT Vol	18	0	88	0	56	90
Through Vol	290	0	185	0	96	434
RT Vol	0	81	0	24	54	63
Lane Flow Rate	321	84	284	25	215	611
Geometry Grp	7	7	7	7	6	6
Degree of Util (X)	0.713	0.17	0.669	0.053	0.522	1.341
Departure Headway (Hd)	8.703	7.944	9.316	8.417	9.777	7.896
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	417	455	390	428	371	465
Service Time	6.403	5.644	7.016	6.117	7.777	5.948
HCM Lane V/C Ratio	0.77	0.185	0.728	0.058	0.58	1.314
HCM Control Delay	30.3	12.3	28.9	11.6	23	191
HCM Lane LOS	D	B	D	B	C	F
HCM 95th-tile Q	5.5	0.6	4.7	0.2	2.9	27.6

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
4: Redlands Bl & Cactus Av

EAC Conditions PM Peak Hour
HCM 6th AWSC

Intersection

Intersection Delay, s/veh 15.1

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕	↗		↕			↕↕	↗		↗	↗
Traffic Vol, veh/h	189	14	33	0	7	10	12	203	0	20	336	134
Future Vol, veh/h	189	14	33	0	7	10	12	203	0	20	336	134
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	199	15	35	0	7	11	13	214	0	21	354	141
Number of Lanes	0	2	1	0	1	0	0	2	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	3	2	3
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	2	3	3	1
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	3	2	1	3
HCM Control Delay	13.5	10.2	11.5	17.6
HCM LOS	B	B	B	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	SBLn1	SBLn2
Vol Left, %	15%	0%	0%	98%	0%	0%	0%	5%	0%
Vol Thru, %	85%	100%	100%	2%	100%	0%	41%	91%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	59%	4%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	80	135	0	194	9	33	17	369	121
LT Vol	12	0	0	189	0	0	0	20	0
Through Vol	68	135	0	5	9	0	7	336	0
RT Vol	0	0	0	0	0	33	10	13	121
Lane Flow Rate	84	142	0	204	10	35	18	389	127
Geometry Grp	8	8	8	7	7	7	8	8	8
Degree of Util (X)	0.158	0.266	0	0.4	0.018	0.057	0.036	0.663	0.191
Departure Headway (Hd)	6.802	6.726	6.726	7.072	6.578	5.868	7.146	6.137	5.429
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	526	533	0	508	543	609	498	587	659
Service Time	4.566	4.49	4.49	4.827	4.332	3.622	4.932	3.887	3.179
HCM Lane V/C Ratio	0.16	0.266	0	0.402	0.018	0.057	0.036	0.663	0.193
HCM Control Delay	10.9	11.9	9.5	14.5	9.5	9	10.2	20.2	9.5
HCM Lane LOS	B	B	N	B	A	A	B	C	A
HCM 95th-tile Q	0.6	1.1	0	1.9	0.1	0.2	0.1	4.9	0.7

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
5: Merwin St & Alessandro Bl

EAC Conditions PM Peak Hour
HCM 6th TWSC

Intersection												
Int Delay, s/veh	1.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	231	61	9	125	3	35	0	5	0	0	1
Future Vol, veh/h	2	231	61	9	125	3	35	0	5	0	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	251	66	10	136	3	38	0	5	0	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	139	0	0	317	0	0	446	447	284	449	479	138
Stage 1	-	-	-	-	-	-	288	288	-	158	158	-
Stage 2	-	-	-	-	-	-	158	159	-	291	321	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1445	-	-	1243	-	-	523	506	755	520	486	910
Stage 1	-	-	-	-	-	-	720	674	-	844	767	-
Stage 2	-	-	-	-	-	-	844	766	-	717	652	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1445	-	-	1243	-	-	518	500	755	512	481	910
Mov Cap-2 Maneuver	-	-	-	-	-	-	518	500	-	512	481	-
Stage 1	-	-	-	-	-	-	719	673	-	842	760	-
Stage 2	-	-	-	-	-	-	835	759	-	710	651	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.5			12.3			9		
HCM LOS							B			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	539	1445	-	-	1243	-	-	910
HCM Lane V/C Ratio	0.081	0.002	-	-	0.008	-	-	0.001
HCM Control Delay (s)	12.3	7.5	0	-	7.9	0	-	9
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	0

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

EACP CONDITIONS

Redlands Alessandro TIA
1: Wilmot St & Alessandro Bl

EACP Conditions AM Peak Hour
HCM 6th TWSC

Intersection												
Int Delay, s/veh	1.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	20	140	7	10	342	4	11	6	23	8	4	24
Future Vol, veh/h	20	140	7	10	342	4	11	6	23	8	4	24
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	151	8	11	368	4	12	6	25	9	4	26

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	372	0	0	159	0	0	606	593	155	607	595	370
Stage 1	-	-	-	-	-	-	199	199	-	392	392	-
Stage 2	-	-	-	-	-	-	407	394	-	215	203	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1186	-	-	1420	-	-	409	418	891	408	417	676
Stage 1	-	-	-	-	-	-	803	736	-	633	606	-
Stage 2	-	-	-	-	-	-	621	605	-	787	733	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1186	-	-	1420	-	-	381	405	891	383	404	676
Mov Cap-2 Maneuver	-	-	-	-	-	-	381	405	-	383	404	-
Stage 1	-	-	-	-	-	-	787	721	-	620	600	-
Stage 2	-	-	-	-	-	-	587	599	-	743	718	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1			0.2			11.8			12.1		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	576	1186	-	-	1420	-	-	543
HCM Lane V/C Ratio	0.075	0.018	-	-	0.008	-	-	0.071
HCM Control Delay (s)	11.8	8.1	0	-	7.6	0	-	12.1
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.2	0.1	-	-	0	-	-	0.2

Redlands Alessandro TIA
2: Redlands Bl & Cottonwood Av

EACP Conditions AM Peak Hour
Timings



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗	↖	↑	↑	↗
Traffic Volume (vph)	48	59	44	545	367	36
Future Volume (vph)	48	59	44	545	367	36
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	22.5	22.5	11.5	22.5	36.5	36.5
Total Split (s)	23.0	23.0	12.0	52.0	40.0	40.0
Total Split (%)	30.7%	30.7%	16.0%	69.3%	53.3%	53.3%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	Max	Max	Max
Act Effct Green (s)	7.8	7.8	7.4	51.7	44.7	44.7
Actuated g/C Ratio	0.12	0.12	0.11	0.80	0.69	0.69
v/c Ratio	0.24	0.25	0.23	0.38	0.30	0.03
Control Delay	28.2	10.7	28.8	3.6	7.1	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.2	10.7	28.8	3.6	7.1	2.7
LOS	C	B	C	A	A	A
Approach Delay	18.6			5.4	6.7	
Approach LOS	B			A	A	

Intersection Summary

Cycle Length: 75
 Actuated Cycle Length: 64.6
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.38
 Intersection Signal Delay: 7.2
 Intersection Capacity Utilization 41.2%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service A













Splits and Phases: 2: Redlands Bl & Cottonwood Av



Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
2: Redlands Bl & Cottonwood Av

EACP Conditions AM Peak Hour
HCM 6th Signalized Intersection Summary

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	48	59	44	545	367	36
Future Volume (veh/h)	48	59	44	545	367	36
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	51	62	46	574	386	38
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	172	153	110	1448	1212	1027
Arrive On Green	0.10	0.10	0.06	0.77	0.65	0.65
Sat Flow, veh/h	1781	1585	1781	1870	1870	1585
Grp Volume(v), veh/h	51	62	46	574	386	38
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1870	1870	1585
Q Serve(g_s), s	1.7	2.3	1.5	6.2	5.7	0.5
Cycle Q Clear(g_c), s	1.7	2.3	1.5	6.2	5.7	0.5
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	172	153	110	1448	1212	1027
V/C Ratio(X)	0.30	0.40	0.42	0.40	0.32	0.04
Avail Cap(c_a), veh/h	546	486	230	1448	1212	1027
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.0	26.3	28.0	2.3	4.8	3.9
Incr Delay (d2), s/veh	0.9	1.7	2.5	0.8	0.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.1	0.7	0.4	1.3	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	27.0	28.0	30.5	3.1	5.5	4.0
LnGrp LOS	C	C	C	A	A	A
Approach Vol, veh/h	113			620	424	
Approach Delay, s/veh	27.6			5.1	5.4	
Approach LOS	C			A	A	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		52.0		10.0	7.8	44.2
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		48.0		19.0	8.0	36.0
Max Q Clear Time (g_c+I1), s		8.2		4.3	3.5	7.7
Green Ext Time (p_c), s		3.6		0.2	0.0	2.2
Intersection Summary						
HCM 6th Ctrl Delay			7.4			
HCM 6th LOS			A			

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
3: Redlands BI & Alessandro BI

EACP Conditions AM Peak Hour
HCM 6th AWSC

Intersection

Intersection Delay, s/veh 99.2

Intersection LOS F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕		↕			↕	↕		↕	
Traffic Vol, veh/h	59	73	30	84	216	64	37	441	87	35	305	103
Future Vol, veh/h	59	73	30	84	216	64	37	441	87	35	305	103
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	64	79	33	91	235	70	40	479	95	38	332	112
Number of Lanes	0	1	1	0	1	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	1	2
HCM Control Delay	19	67.6	126.9	119.1
HCM LOS	C	F	F	F

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	8%	0%	45%	0%	23%	8%
Vol Thru, %	92%	0%	55%	0%	59%	69%
Vol Right, %	0%	100%	0%	100%	18%	23%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	478	87	132	30	364	443
LT Vol	37	0	59	0	84	35
Through Vol	441	0	73	0	216	305
RT Vol	0	87	0	30	64	103
Lane Flow Rate	520	95	143	33	396	482
Geometry Grp	7	7	7	7	6	6
Degree of Util (X)	1.222	0.203	0.392	0.081	0.957	1.141
Departure Headway (Hd)	8.914	8.145	10.777	9.803	9.527	9.079
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	410	444	336	368	384	404
Service Time	6.614	5.845	8.477	7.503	7.527	7.079
HCM Lane V/C Ratio	1.268	0.214	0.426	0.09	1.031	1.193
HCM Control Delay	147.6	12.9	20.3	13.4	67.6	119.1
HCM Lane LOS	F	B	C	B	F	F
HCM 95th-tile Q	20.3	0.8	1.8	0.3	10.7	17

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
4: Redlands Bl & Cactus Av

EACP Conditions AM Peak Hour
HCM 6th AWSC

Intersection

Intersection Delay, s/veh 17.5

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕	↕		↕			↕↕	↕		↕	↕
Traffic Vol, veh/h	151	8	79	1	15	23	23	383	0	3	308	129
Future Vol, veh/h	151	8	79	1	15	23	23	383	0	3	308	129
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	172	9	90	1	17	26	26	435	0	3	350	147
Number of Lanes	0	2	1	0	1	0	0	2	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	3	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	3	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	1	3
HCM Control Delay	13.7	11.9	17.1	20.5
HCM LOS	B	B	C	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	SBLn1	SBLn2
Vol Left, %	15%	0%	0%	98%	0%	0%	3%	1%	0%
Vol Thru, %	85%	100%	100%	2%	100%	0%	38%	99%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	59%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	151	255	0	154	5	79	39	311	129
LT Vol	23	0	0	151	0	0	1	3	0
Through Vol	128	255	0	3	5	0	15	308	0
RT Vol	0	0	0	0	0	79	23	0	129
Lane Flow Rate	171	290	0	175	6	90	44	353	147
Geometry Grp	8	8	8	7	7	7	8	8	8
Degree of Util (X)	0.342	0.574	0	0.381	0.012	0.166	0.101	0.693	0.258
Departure Headway (Hd)	7.199	7.122	7.122	7.856	7.354	6.638	8.188	7.057	6.341
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	500	508	0	459	487	540	437	512	567
Service Time	4.937	4.859	4.859	5.591	5.088	4.373	5.943	4.793	4.076
HCM Lane V/C Ratio	0.342	0.571	0	0.381	0.012	0.167	0.101	0.689	0.259
HCM Control Delay	13.7	19.1	9.9	15.4	10.2	10.7	11.9	24.3	11.3
HCM Lane LOS	B	C	N	C	B	B	B	C	B
HCM 95th-tile Q	1.5	3.6	0	1.8	0	0.6	0.3	5.3	1

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
5: Merwin St & Alessandro BI

EACP Conditions AM Peak Hour
HCM 6th TWSC

Intersection												
Int Delay, s/veh	1.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	149	19	2	235	1	56	0	8	0	0	4
Future Vol, veh/h	1	149	19	2	235	1	56	0	8	0	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	166	21	2	261	1	62	0	9	0	0	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	262	0	0	187	0	0	447	445	177	449	455	262
Stage 1	-	-	-	-	-	-	179	179	-	266	266	-
Stage 2	-	-	-	-	-	-	268	266	-	183	189	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1302	-	-	1387	-	-	522	508	866	520	501	777
Stage 1	-	-	-	-	-	-	823	751	-	739	689	-
Stage 2	-	-	-	-	-	-	738	689	-	819	744	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1302	-	-	1387	-	-	518	506	866	513	499	777
Mov Cap-2 Maneuver	-	-	-	-	-	-	518	506	-	513	499	-
Stage 1	-	-	-	-	-	-	822	750	-	738	688	-
Stage 2	-	-	-	-	-	-	732	688	-	810	743	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.1			12.6			9.7		
HCM LOS							B			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	545	1302	-	-	1387	-	-	777
HCM Lane V/C Ratio	0.13	0.001	-	-	0.002	-	-	0.006
HCM Control Delay (s)	12.6	7.8	0	-	7.6	0	-	9.7
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.4	0	-	-	0	-	-	0

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
6: Redlands Bl & Dwy 1

EACP Conditions AM Peak Hour
HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕↗			↕
Traffic Vol, veh/h	0	50	426	16	0	419
Future Vol, veh/h	0	50	426	16	0	419
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	54	463	17	0	455

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	-	240	0	0	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	6.93	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.319	-	-	-
Pot Cap-1 Maneuver	0	762	-	-	0
Stage 1	0	-	-	-	0
Stage 2	0	-	-	-	0
Platoon blocked, %					
Mov Cap-1 Maneuver	-	762	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.1	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	-	762
HCM Lane V/C Ratio	-	-	0.071
HCM Control Delay (s)	-	-	10.1
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0.2

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
7: Dwy 2 & Alessandro BI

EACP Conditions AM Peak Hour
HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↑		↗
Traffic Vol, veh/h	163	41	0	348	0	4
Future Vol, veh/h	163	41	0	348	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	177	45	0	378	0	4
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	-	-	-	200
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	-	-	0	-	0	841
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	841
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	0	9.3			
HCM LOS						A
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT		
Capacity (veh/h)	841	-	-	-		
HCM Lane V/C Ratio	0.005	-	-	-		
HCM Control Delay (s)	9.3	-	-	-		
HCM Lane LOS	A	-	-	-		
HCM 95th %tile Q(veh)	0	-	-	-		

Redlands Alessandro TIA
1: Wilmot St & Alessandro BI

EACP Conditions PM Peak Hour
HCM 6th TWSC

Intersection												
Int Delay, s/veh	1.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	20	299	12	22	182	3	6	11	15	3	4	22
Future Vol, veh/h	20	299	12	22	182	3	6	11	15	3	4	22
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	23	348	14	26	212	3	7	13	17	3	5	26

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	215	0	0	362	0	0	682	668	355	682	674	214
Stage 1	-	-	-	-	-	-	401	401	-	266	266	-
Stage 2	-	-	-	-	-	-	281	267	-	416	408	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1355	-	-	1197	-	-	364	379	689	364	376	826
Stage 1	-	-	-	-	-	-	626	601	-	739	689	-
Stage 2	-	-	-	-	-	-	726	688	-	614	597	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1355	-	-	1197	-	-	337	362	689	333	359	826
Mov Cap-2 Maneuver	-	-	-	-	-	-	337	362	-	333	359	-
Stage 1	-	-	-	-	-	-	613	588	-	723	672	-
Stage 2	-	-	-	-	-	-	681	671	-	573	584	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.5			0.9			13.6			11.1		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	457	1355	-	-	1197	-	-	620
HCM Lane V/C Ratio	0.081	0.017	-	-	0.021	-	-	0.054
HCM Control Delay (s)	13.6	7.7	0	-	8.1	0	-	11.1
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.3	0.1	-	-	0.1	-	-	0.2

Redlands Alessandro TIA
2: Redlands Bl & Cottonwood Av

EACP Conditions PM Peak Hour
Timings



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗	↖	↑	↑	↗
Traffic Volume (vph)	32	42	34	402	572	62
Future Volume (vph)	32	42	34	402	572	62
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	22.5	22.5	11.5	22.5	36.5	36.5
Total Split (s)	23.0	23.0	12.0	52.0	40.0	40.0
Total Split (%)	30.7%	30.7%	16.0%	69.3%	53.3%	53.3%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	Max	Max	Max
Act Effct Green (s)	7.3	7.3	7.3	54.7	50.0	50.0
Actuated g/C Ratio	0.11	0.11	0.11	0.85	0.78	0.78
v/c Ratio	0.16	0.19	0.17	0.26	0.40	0.05
Control Delay	27.2	11.7	27.5	2.3	6.4	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.2	11.7	27.5	2.3	6.4	2.1
LOS	C	B	C	A	A	A
Approach Delay	18.4			4.3	6.0	
Approach LOS	B			A	A	

Intersection Summary

Cycle Length: 75
 Actuated Cycle Length: 64.1
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.40
 Intersection Signal Delay: 6.1
 Intersection Capacity Utilization 42.6%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service A













Splits and Phases: 2: Redlands Bl & Cottonwood Av



Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
2: Redlands Bl & Cottonwood Av

EACP Conditions PM Peak Hour
HCM 6th Signalized Intersection Summary

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	32	42	34	402	572	62
Future Volume (veh/h)	32	42	34	402	572	62
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	32	42	34	406	578	63
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	146	130	90	1472	1255	1064
Arrive On Green	0.08	0.08	0.05	0.79	0.67	0.67
Sat Flow, veh/h	1781	1585	1781	1870	1870	1585
Grp Volume(v), veh/h	32	42	34	406	578	63
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1870	1870	1585
Q Serve(g_s), s	1.0	1.5	1.1	3.6	9.0	0.8
Cycle Q Clear(g_c), s	1.0	1.5	1.1	3.6	9.0	0.8
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	146	130	90	1472	1255	1064
V/C Ratio(X)	0.22	0.32	0.38	0.28	0.46	0.06
Avail Cap(c_a), veh/h	555	494	234	1472	1255	1064
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.2	26.4	28.0	1.8	4.8	3.4
Incr Delay (d2), s/veh	0.7	1.4	2.6	0.5	1.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.1	0.5	0.2	1.9	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	26.9	27.8	30.7	2.2	6.0	3.5
LnGrp LOS	C	C	C	A	A	A
Approach Vol, veh/h	74			440	641	
Approach Delay, s/veh	27.4			4.4	5.8	
Approach LOS	C			A	A	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		52.0		9.0	7.1	44.9
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		48.0		19.0	8.0	36.0
Max Q Clear Time (g_c+I1), s		5.6		3.5	3.1	11.0
Green Ext Time (p_c), s		2.3		0.1	0.0	3.6
Intersection Summary						
HCM 6th Ctrl Delay			6.6			
HCM 6th LOS			A			

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
3: Redlands BI & Alessandro BI

EACP Conditions PM Peak Hour
HCM 6th AWSC

Intersection

Intersection Delay, s/veh105.3

Intersection LOS F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕		↕			↕	↕		↕	
Traffic Vol, veh/h	88	200	24	56	96	54	38	301	81	102	434	63
Future Vol, veh/h	88	200	24	56	96	54	38	301	81	102	434	63
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	92	208	25	58	100	56	40	314	84	106	452	66
Number of Lanes	0	1	1	0	1	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	1	2
HCM Control Delay	31.5	24.5	34.1	221.5
HCM LOS	D	C	D	F

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	11%	0%	31%	0%	27%	17%
Vol Thru, %	89%	0%	69%	0%	47%	72%
Vol Right, %	0%	100%	0%	100%	26%	11%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	339	81	288	24	206	599
LT Vol	38	0	88	0	56	102
Through Vol	301	0	200	0	96	434
RT Vol	0	81	0	24	54	63
Lane Flow Rate	353	84	300	25	215	624
Geometry Grp	7	7	7	7	6	6
Degree of Util (X)	0.799	0.173	0.717	0.054	0.536	1.412
Departure Headway (Hd)	9.001	8.212	9.582	8.689	10.238	8.144
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	406	440	381	415	354	449
Service Time	6.701	5.912	7.282	6.389	8.238	6.223
HCM Lane V/C Ratio	0.869	0.191	0.787	0.06	0.607	1.39
HCM Control Delay	39.2	12.6	33.1	11.9	24.5	221.5
HCM Lane LOS	E	B	D	B	C	F
HCM 95th-tile Q	7	0.6	5.4	0.2	3	30.2

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
4: Redlands Bl & Cactus Av

EACP Conditions PM Peak Hour
HCM 6th AWSC

Intersection

Intersection Delay, s/veh 14.8

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕	↗		↕			↕↕	↗		↕	↗
Traffic Vol, veh/h	193	15	36	0	7	11	12	206	0	20	336	134
Future Vol, veh/h	193	15	36	0	7	11	12	206	0	20	336	134
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	203	16	38	0	7	12	13	217	0	21	354	141
Number of Lanes	0	2	1	0	1	0	0	2	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	3	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	3	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	1	3
HCM Control Delay	13.6	10.2	11.6	17
HCM LOS	B	B	B	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	SBLn1	SBLn2
Vol Left, %	15%	0%	0%	97%	0%	0%	0%	6%	0%
Vol Thru, %	85%	100%	100%	3%	100%	0%	39%	94%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	61%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	81	137	0	198	10	36	18	356	134
LT Vol	12	0	0	193	0	0	0	20	0
Through Vol	69	137	0	5	10	0	7	336	0
RT Vol	0	0	0	0	0	36	11	0	134
Lane Flow Rate	85	145	0	208	11	38	19	375	141
Geometry Grp	8	8	8	7	7	7	8	8	8
Degree of Util (X)	0.161	0.271	0	0.41	0.019	0.062	0.038	0.646	0.214
Departure Headway (Hd)	6.833	6.758	6.758	7.081	6.587	5.878	7.163	6.208	5.473
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	523	529	0	509	542	607	497	581	654
Service Time	4.598	4.523	4.523	4.837	4.342	3.632	4.95	3.958	3.223
HCM Lane V/C Ratio	0.163	0.274	0	0.409	0.02	0.063	0.038	0.645	0.216
HCM Control Delay	10.9	12	9.5	14.7	9.5	9	10.2	19.7	9.7
HCM Lane LOS	B	B	N	B	A	A	B	C	A
HCM 95th-tile Q	0.6	1.1	0	2	0.1	0.2	0.1	4.6	0.8

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
5: Merwin St & Alessandro Bl

EACP Conditions PM Peak Hour
HCM 6th TWSC

Intersection												
Int Delay, s/veh	1.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	231	63	9	125	3	35	0	5	0	0	1
Future Vol, veh/h	2	231	63	9	125	3	35	0	5	0	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	251	68	10	136	3	38	0	5	0	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	139	0	0	319	0	0	447	448	285	450	481	138
Stage 1	-	-	-	-	-	-	289	289	-	158	158	-
Stage 2	-	-	-	-	-	-	158	159	-	292	323	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1445	-	-	1241	-	-	522	506	754	519	485	910
Stage 1	-	-	-	-	-	-	719	673	-	844	767	-
Stage 2	-	-	-	-	-	-	844	766	-	716	650	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1445	-	-	1241	-	-	517	500	754	511	480	910
Mov Cap-2 Maneuver	-	-	-	-	-	-	517	500	-	511	480	-
Stage 1	-	-	-	-	-	-	718	672	-	842	760	-
Stage 2	-	-	-	-	-	-	835	759	-	709	649	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.5			12.3			9		
HCM LOS							B			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	538	1445	-	-	1241	-	-	910
HCM Lane V/C Ratio	0.081	0.002	-	-	0.008	-	-	0.001
HCM Control Delay (s)	12.3	7.5	0	-	7.9	0	-	9
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	0

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
6: Redlands Bl & Dwy 1

EACP Conditions PM Peak Hour
HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕			↖
Traffic Vol, veh/h	0	64	286	21	0	514
Future Vol, veh/h	0	64	286	21	0	514
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	70	311	23	0	559
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	-	167	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.93	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.319	-	-	-	-
Pot Cap-1 Maneuver	0	849	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-	-	-
Mov Cap-1 Maneuver	-	849	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	9.6	0	0			
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT			
Capacity (veh/h)	-	-	849			
HCM Lane V/C Ratio	-	-	0.082			
HCM Control Delay (s)	-	-	9.6			
HCM Lane LOS	-	-	A			
HCM 95th %tile Q(veh)	-	-	0.3			

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
7: Dwy 2 & Alessandro BI

EACP Conditions PM Peak Hour
HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↑		↗
Traffic Vol, veh/h	324	56	0	196	0	6
Future Vol, veh/h	324	56	0	196	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	352	61	0	213	0	7
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	-	-	-	383
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	-	-	0	-	0	664
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	664
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	0	10.5			
HCM LOS				B		
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT		
Capacity (veh/h)	664	-	-	-		
HCM Lane V/C Ratio	0.01	-	-	-		
HCM Control Delay (s)	10.5	-	-	-		
HCM Lane LOS	B	-	-	-		
HCM 95th %tile Q(veh)	0	-	-	-		

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

EACP CONDITIONS WITH IMPROVEMENTS

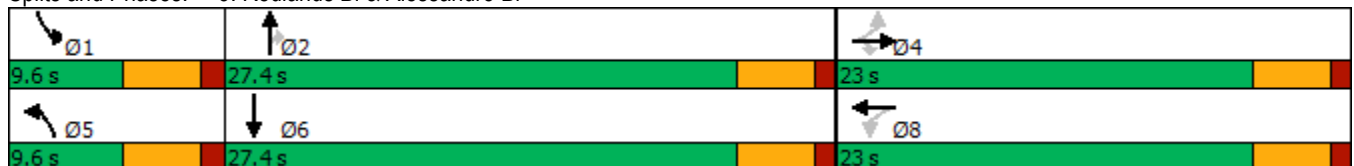
Redlands Alessandro TIA
3: Redlands BI & Alessandro BI

Mitigated EACP Conditions AM Peak Hour
Timings

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations		↕	↗		↔	↖	↕	↗	↖	↗
Traffic Volume (vph)	59	73	30	84	216	37	441	87	35	305
Future Volume (vph)	59	73	30	84	216	37	441	87	35	305
Turn Type	Perm	NA	Perm	Perm	NA	Prot	NA	Perm	Prot	NA
Protected Phases		4			8	5	2		1	6
Permitted Phases	4		4	8				2		
Detector Phase	4	4	4	8	8	5	2	2	1	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5
Total Split (s)	23.0	23.0	23.0	23.0	23.0	9.6	27.4	27.4	9.6	27.4
Total Split (%)	38.3%	38.3%	38.3%	38.3%	38.3%	16.0%	45.7%	45.7%	16.0%	45.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	Min	None	Min
Act Effct Green (s)		15.3	15.3		15.3	5.6	16.8	16.8	5.6	16.8
Actuated g/C Ratio		0.34	0.34		0.34	0.12	0.38	0.38	0.12	0.38
v/c Ratio		0.30	0.05		0.70	0.18	0.69	0.14	0.17	0.64
Control Delay		15.9	0.2		23.5	25.8	19.0	3.3	25.8	16.9
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		15.9	0.2		23.5	25.8	19.0	3.3	25.8	16.9
LOS		B	A		C	C	B	A	C	B
Approach Delay		13.0			23.5		17.0			17.6
Approach LOS		B			C		B			B

Intersection Summary
 Cycle Length: 60
 Actuated Cycle Length: 44.8
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.70
 Intersection Signal Delay: 18.3
 Intersection LOS: B
 Intersection Capacity Utilization 64.8%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 3: Redlands BI & Alessandro BI



Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
3: Redlands BI & Alessandro BI

Mitigated EACP Conditions AM Peak Hour
HCM 6th Signalized Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	59	73	30	84	216	64	37	441	87	35	305	103
Future Volume (veh/h)	59	73	30	84	216	64	37	441	87	35	305	103
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	64	79	33	91	235	70	40	479	95	38	332	112
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	280	299	468	191	326	88	79	623	528	76	444	150
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.04	0.33	0.33	0.04	0.33	0.33
Sat Flow, veh/h	519	1011	1585	283	1105	298	1781	1870	1585	1781	1338	451
Grp Volume(v), veh/h	143	0	33	396	0	0	40	479	95	38	0	444
Grp Sat Flow(s),veh/h/ln	1530	0	1585	1686	0	0	1781	1870	1585	1781	0	1789
Q Serve(g_s), s	0.0	0.0	0.6	5.7	0.0	0.0	0.9	9.4	1.7	0.9	0.0	9.1
Cycle Q Clear(g_c), s	2.4	0.0	0.6	8.8	0.0	0.0	0.9	9.4	1.7	0.9	0.0	9.1
Prop In Lane	0.45		1.00	0.23		0.18	1.00		1.00	1.00		0.25
Lane Grp Cap(c), veh/h	579	0	468	606	0	0	79	623	528	76	0	593
V/C Ratio(X)	0.25	0.00	0.07	0.65	0.00	0.00	0.50	0.77	0.18	0.50	0.00	0.75
Avail Cap(c_a), veh/h	796	0	713	860	0	0	221	1042	883	221	0	996
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.0	0.0	10.4	13.2	0.0	0.0	19.2	12.3	9.7	19.2	0.0	12.2
Incr Delay (d2), s/veh	0.2	0.0	0.1	1.2	0.0	0.0	4.9	2.0	0.2	5.0	0.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.2	2.6	0.0	0.0	0.4	2.8	0.4	0.4	0.0	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.3	0.0	10.5	14.4	0.0	0.0	24.1	14.3	9.9	24.2	0.0	14.1
LnGrp LOS	B	A	B	B	A	A	C	B	A	C	A	B
Approach Vol, veh/h		176			396			614				482
Approach Delay, s/veh		11.1			14.4			14.3				14.9
Approach LOS		B			B			B				B
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.3	18.2		16.7	6.3	18.1		16.7				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.1	22.9		18.5	5.1	22.9		18.5				
Max Q Clear Time (g_c+I1), s	2.9	11.4		4.4	2.9	11.1		10.8				
Green Ext Time (p_c), s	0.0	2.3		0.7	0.0	1.9		1.4				
Intersection Summary												
HCM 6th Ctrl Delay				14.2								
HCM 6th LOS				B								

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
3: Redlands BI & Alessandro BI

Mitigated EACP Conditions PM Peak Hour
Timings

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	88	200	24	56	96	38	301	81	102	434
Future Volume (vph)	88	200	24	56	96	38	301	81	102	434
Turn Type	Perm	NA	Perm	Perm	NA	Prot	NA	Perm	Prot	NA
Protected Phases		4			8	5	2		1	6
Permitted Phases	4		4	8				2		
Detector Phase	4	4	4	8	8	5	2	2	1	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5
Total Split (s)	23.0	23.0	23.0	23.0	23.0	9.6	25.8	25.8	11.2	27.4
Total Split (%)	38.3%	38.3%	38.3%	38.3%	38.3%	16.0%	43.0%	43.0%	18.7%	45.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	Min	None	Min
Act Effct Green (s)		13.9	13.9		13.9	5.5	15.6	15.6	6.9	20.8
Actuated g/C Ratio		0.29	0.29		0.29	0.12	0.33	0.33	0.15	0.44
v/c Ratio		0.66	0.05		0.49	0.19	0.51	0.14	0.41	0.64
Control Delay		24.1	0.2		17.7	26.8	18.0	2.9	29.1	17.0
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		24.1	0.2		17.7	26.8	18.0	2.9	29.1	17.0
LOS		C	A		B	C	B	A	C	B
Approach Delay		22.3			17.7		15.9			19.0
Approach LOS		C			B		B			B

Intersection Summary

Cycle Length: 60
 Actuated Cycle Length: 47.5
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.66
 Intersection Signal Delay: 18.6
 Intersection LOS: B
 Intersection Capacity Utilization 72.7%
 ICU Level of Service C
 Analysis Period (min) 15






















Splits and Phases: 3: Redlands BI & Alessandro BI



Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
3: Redlands BI & Alessandro BI

Mitigated EACP Conditions PM Peak Hour
HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	88	200	24	56	96	54	38	301	81	102	434	63
Future Volume (veh/h)	88	200	24	56	96	54	38	301	81	102	434	63
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	92	208	25	58	100	56	40	314	84	106	452	66
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	221	333	405	158	182	80	80	593	502	155	573	84
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.26	0.04	0.32	0.32	0.09	0.36	0.36
Sat Flow, veh/h	400	1303	1585	165	714	311	1781	1870	1585	1781	1595	233
Grp Volume(v), veh/h	300	0	25	214	0	0	40	314	84	106	0	518
Grp Sat Flow(s),veh/h/ln	1703	0	1585	1190	0	0	1781	1870	1585	1781	0	1828
Q Serve(g_s), s	0.0	0.0	0.5	1.3	0.0	0.0	0.9	5.5	1.5	2.3	0.0	10.0
Cycle Q Clear(g_c), s	6.1	0.0	0.5	7.4	0.0	0.0	0.9	5.5	1.5	2.3	0.0	10.0
Prop In Lane	0.31		1.00	0.27		0.26	1.00		1.00	1.00		0.13
Lane Grp Cap(c), veh/h	554	0	405	420	0	0	80	593	502	155	0	656
V/C Ratio(X)	0.54	0.00	0.06	0.51	0.00	0.00	0.50	0.53	0.17	0.68	0.00	0.79
Avail Cap(c_a), veh/h	895	0	740	744	0	0	229	1005	852	301	0	1056
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.2	0.0	11.2	13.0	0.0	0.0	18.5	11.1	9.8	17.6	0.0	11.4
Incr Delay (d2), s/veh	0.8	0.0	0.1	1.0	0.0	0.0	4.8	0.7	0.2	5.3	0.0	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.0	0.1	1.3	0.0	0.0	0.4	1.5	0.4	0.9	0.0	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.0	0.0	11.2	14.0	0.0	0.0	23.2	11.8	9.9	22.8	0.0	13.5
LnGrp LOS	B	A	B	B	A	A	C	B	A	C	A	B
Approach Vol, veh/h		325			214			438			624	
Approach Delay, s/veh		13.8			14.0			12.5			15.1	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.9	17.1		14.6	6.3	18.7		14.6				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	6.7	21.3		18.5	5.1	22.9		18.5				
Max Q Clear Time (g_c+I1), s	4.3	7.5		8.1	2.9	12.0		9.4				
Green Ext Time (p_c), s	0.0	1.5		1.2	0.0	2.2		0.7				
Intersection Summary												
HCM 6th Ctrl Delay				14.0								
HCM 6th LOS				B								

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

APPENDIX D

SIGNAL WARRANT ANALYSIS SHEETS

EXISTING CONDITIONS

EXISTING CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: **AM**

Major Street: **Alessandro Blvd (EW)**

Minor Street: **Wilmot St (NS)**

Total of Both Approaches (VPH): **396**

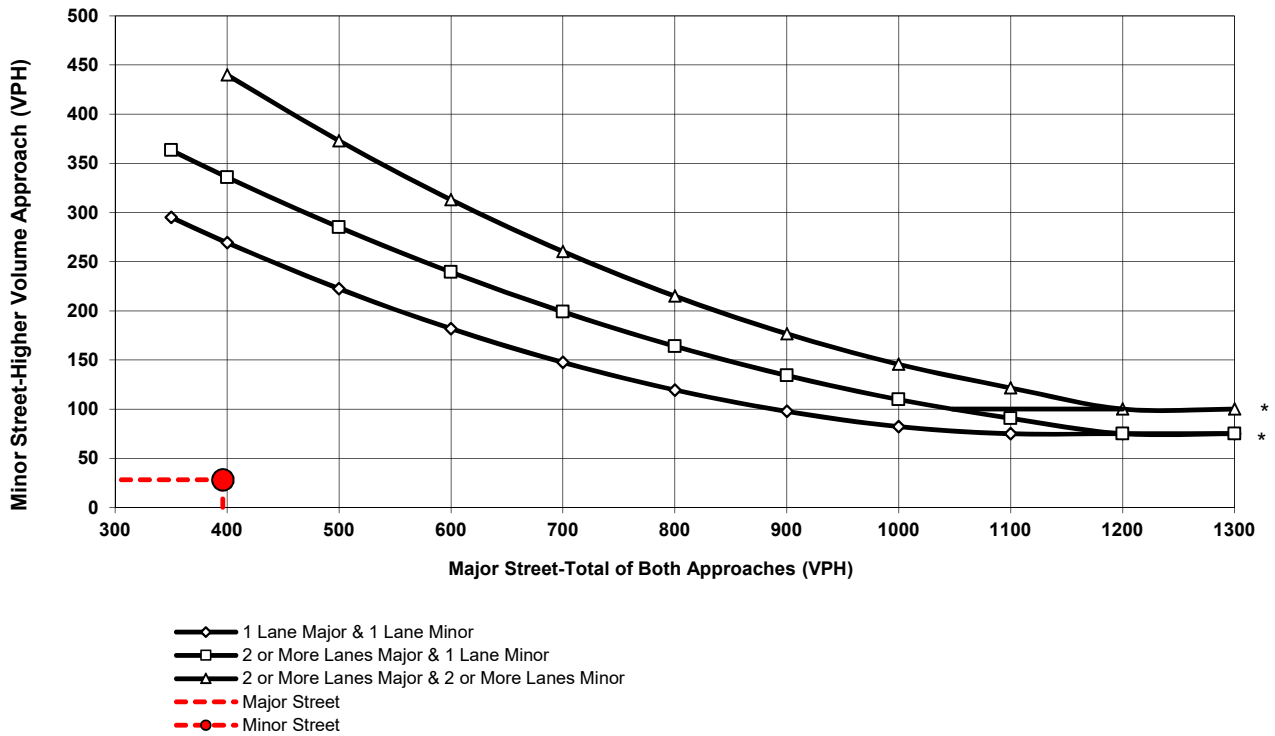
Higher Volume Approach (VPH): **28**

Number of Approach Lanes: **1**

Number of Approach Lanes: **1**

SIGNAL WARRANT NOT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:
100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**Existing Conditions
AM Peak Hour Volume Warrant
Alessandro Blvd/Wilmot St**

EXISTING CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: **PM**

Major Street: **Alessandro Blvd (EW)**

Minor Street: **Wilmot St (NS)**

Total of Both Approaches (VPH): **378**

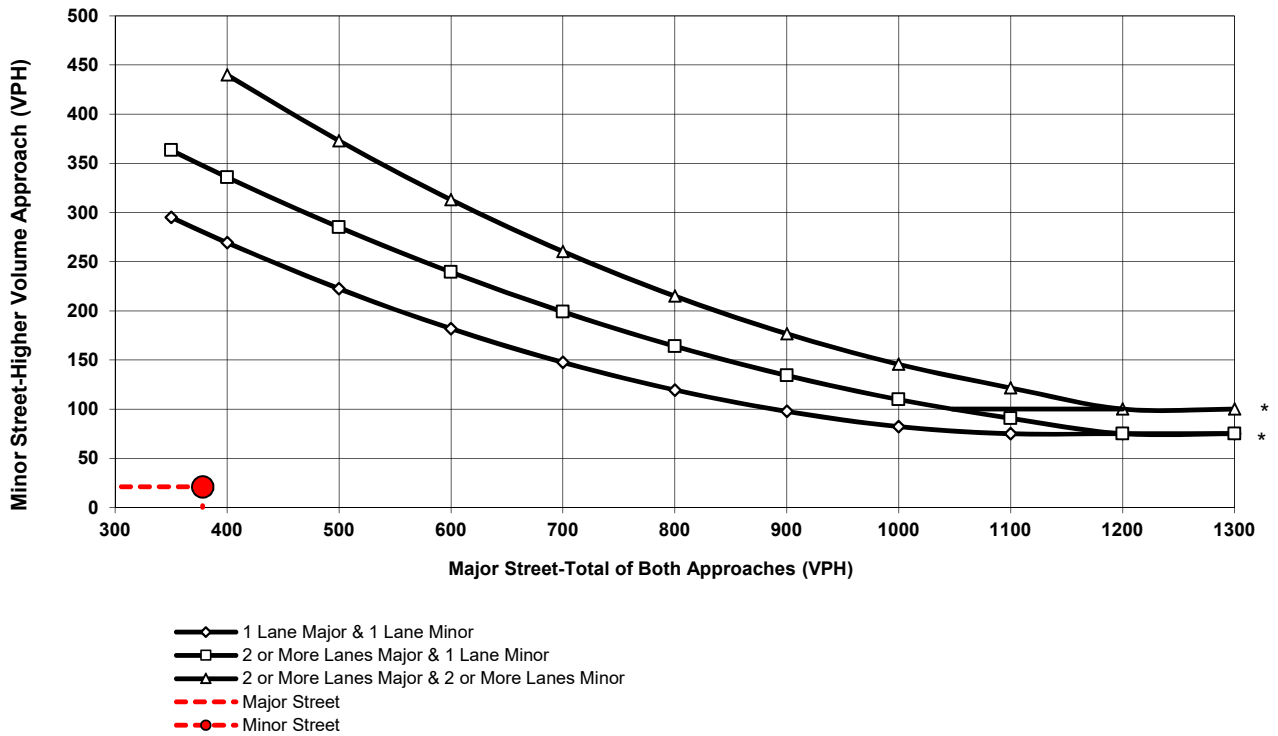
Higher Volume Approach (VPH): **21**

Number of Approach Lanes: **1**

Number of Approach Lanes: **1**

SIGNAL WARRANT NOT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:
100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**Existing Conditions
PM Peak Hour Volume Warrant
Alessandro Blvd/Wilmot St**

EXISTING CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: **AM**

Major Street: **Redlands Blvd (NS)**

Minor Street: **Cactus Ave (EW)**

Total of Both Approaches (VPH): **756**

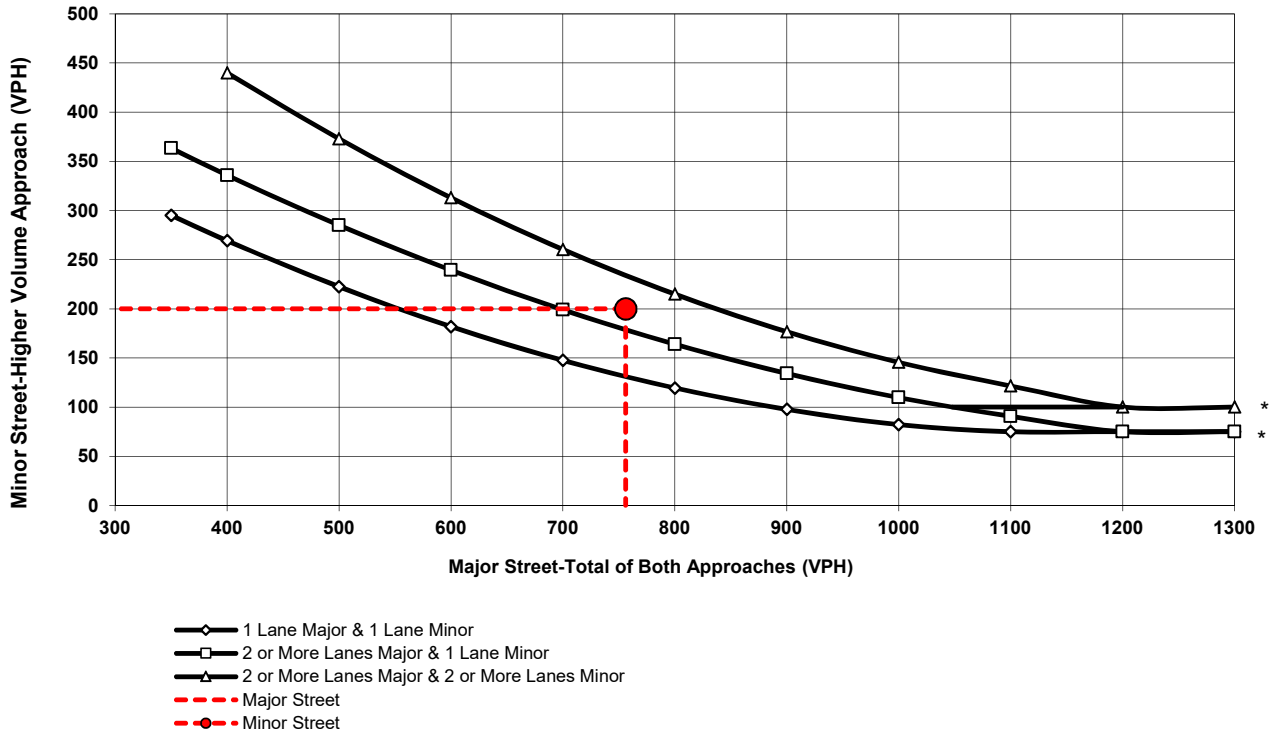
Higher Volume Approach (VPH): **200**

Number of Approach Lanes: **2**

Number of Approach Lanes: **2**

SIGNAL WARRANT NOT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:

100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**Existing Conditions
AM Peak Hour Volume Warrant
Cactus Ave/Redlands Blvd**

EXISTING CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: **AM**

Major Street: **Redlands Blvd (NS)**

Minor Street: **Cactus Ave (EW)**

Total of Both Approaches (VPH): **625**

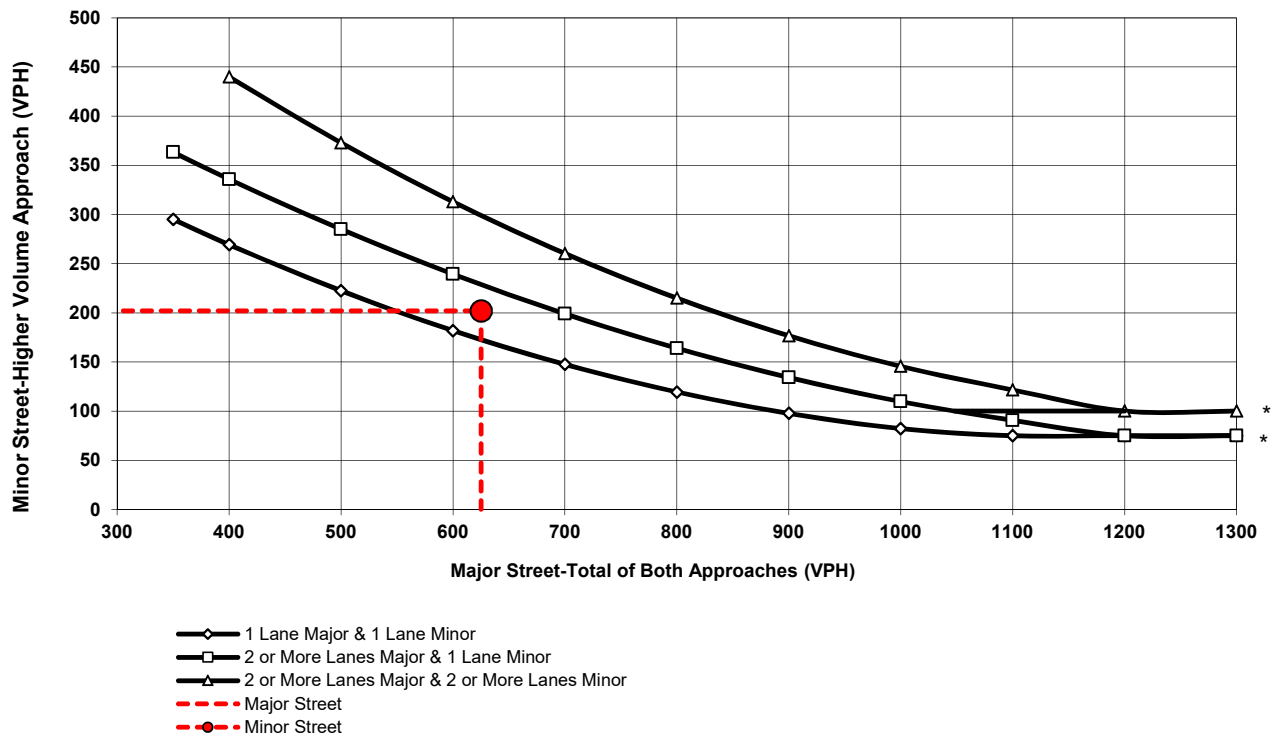
Higher Volume Approach (VPH): **202**

Number of Approach Lanes: **2**

Number of Approach Lanes: **2**

SIGNAL WARRANT NOT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:
100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**Existing Conditions
AM Peak Hour Volume Warrant
Cactus Ave/Redlands Blvd**

EXISTING CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: **AM**

Major Street: **Redlands Blvd (NS)**

Minor Street: **Alessandro Blvd (EW)**

Total of Both Approaches (VPH): **863**

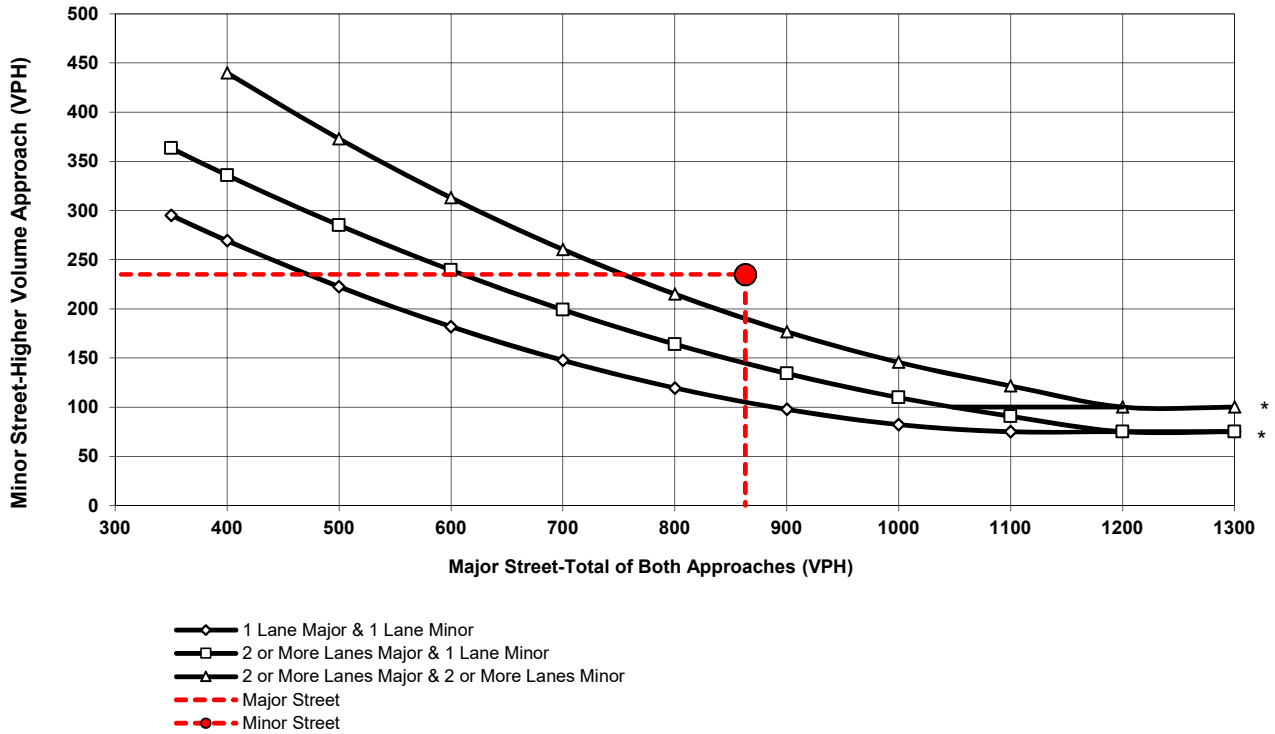
Higher Volume Approach (VPH): **235**

Number of Approach Lanes: **1**

Number of Approach Lanes: **1**

SIGNAL WARRANT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:
100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**Existing Conditions
AM Peak Hour Volume Warrant
Alessandro Blvd/Redlands Blvd**

EXISTING CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: **PM**

Major Street: **Redlands Blvd (NS)**

Minor Street: **Alessandro Blvd (EW)**

Total of Both Approaches (VPH): **823**

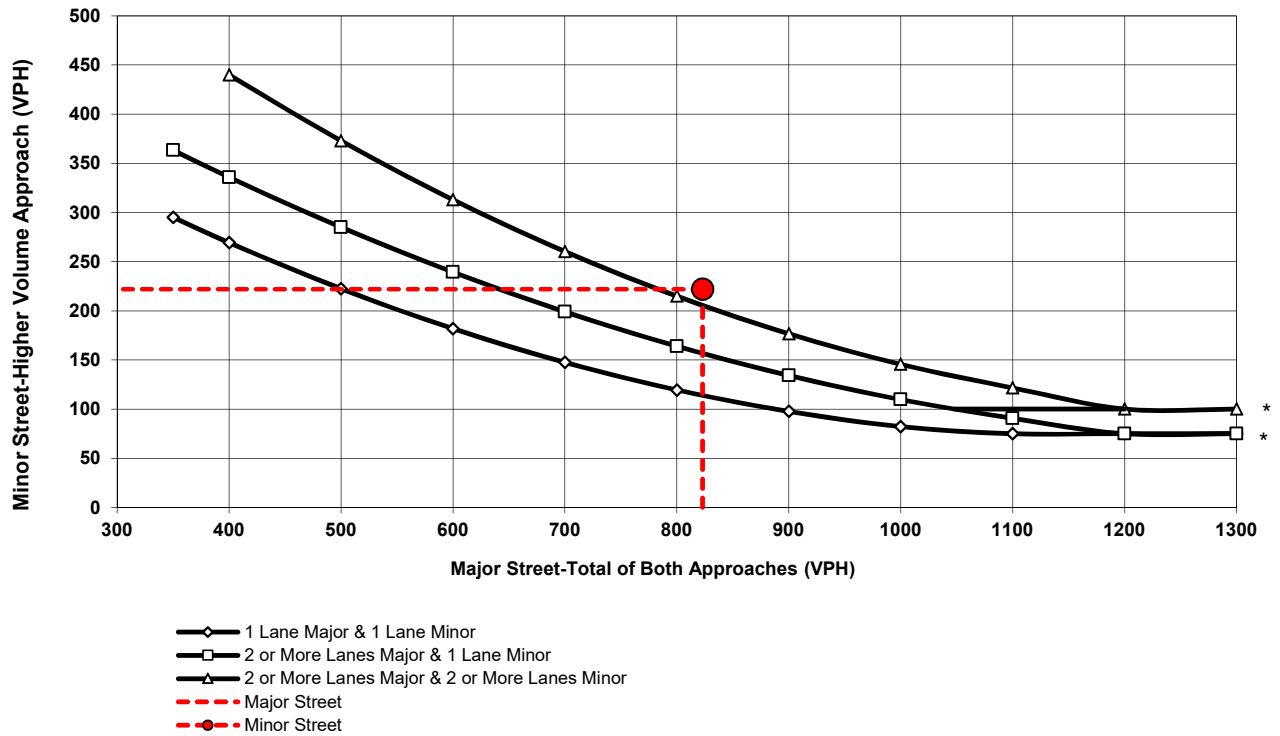
Higher Volume Approach (VPH): **222**

Number of Approach Lanes: **1**

Number of Approach Lanes: **1**

SIGNAL WARRANT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:
100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**Existing Conditions
PM Peak Hour Volume Warrant
Alessandro Blvd/Redlands Blvd**

EXISTING CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: **AM**

Major Street: **Alessandro Blvd (EW)**

Minor Street: **Merwin St (NS)**

Total of Both Approaches (VPH): **350**

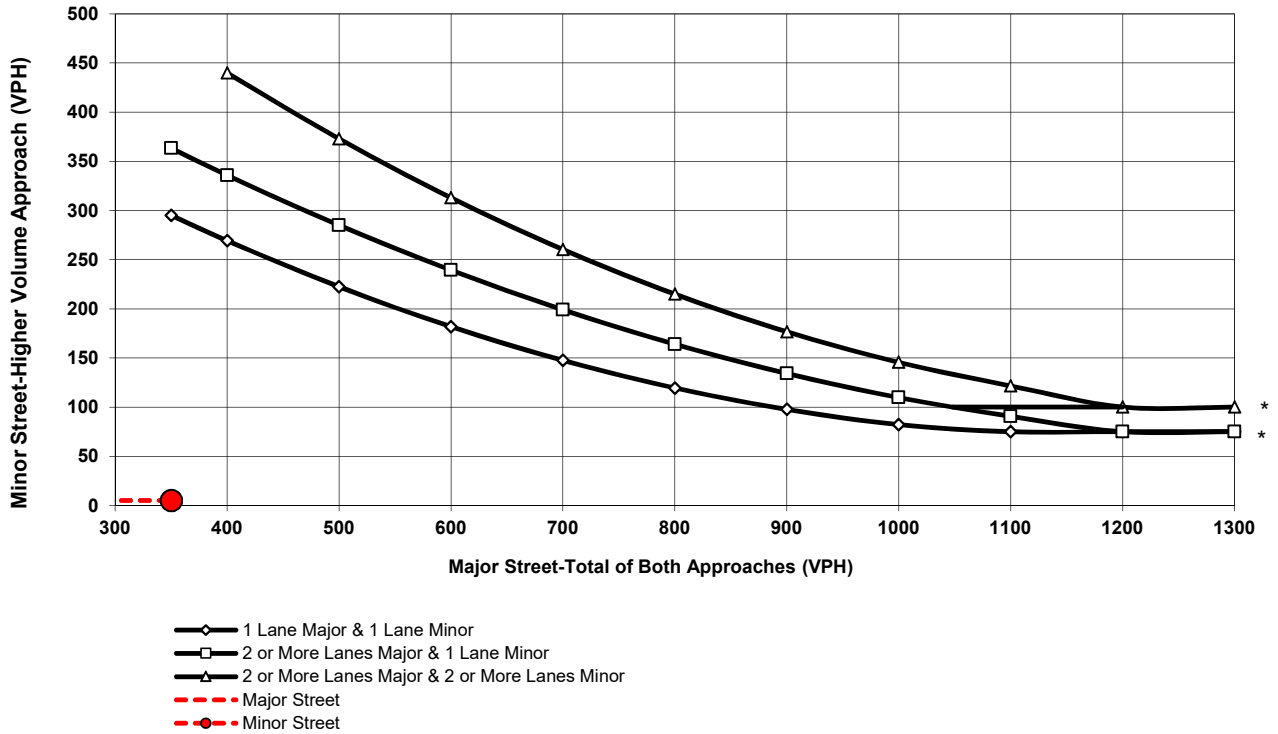
Higher Volume Approach (VPH): **5**

Number of Approach Lanes: **1**

Number of Approach Lanes: **1**

SIGNAL WARRANT NOT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:
100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**Existing Conditions
AM Peak Hour Volume Warrant
Alessandro Blvd/Merwin St**

EXISTING CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: **PM**

Major Street: **Alessandro Blvd (EW)**

Minor Street: **Merwin St (NS)**

Total of Both Approaches (VPH): **331**

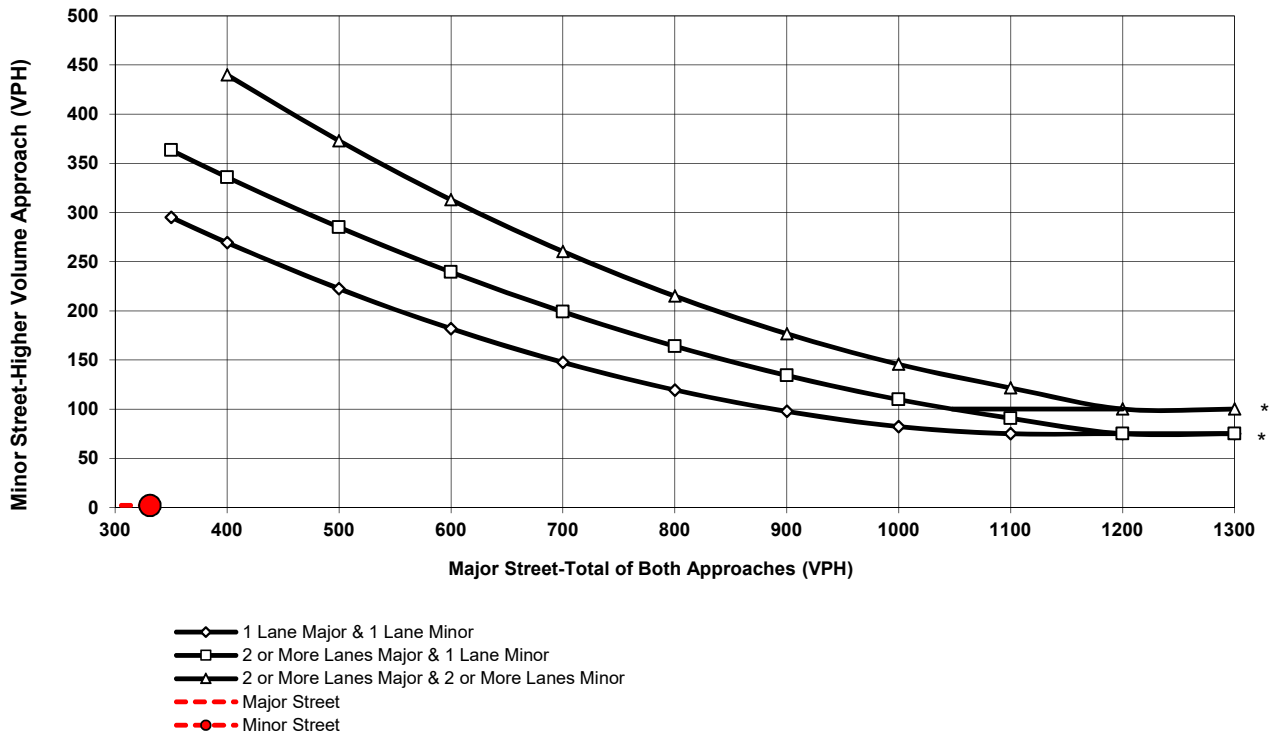
Higher Volume Approach (VPH): **2**

Number of Approach Lanes: **1**

Number of Approach Lanes: **1**

SIGNAL WARRANT NOT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:
100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**Existing Conditions
PM Peak Hour Volume Warrant
Alessandro Blvd/Merwin St**

EP CONDITIONS

EP CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: **AM**

Major Street: **Alessandro Blvd (EW)**

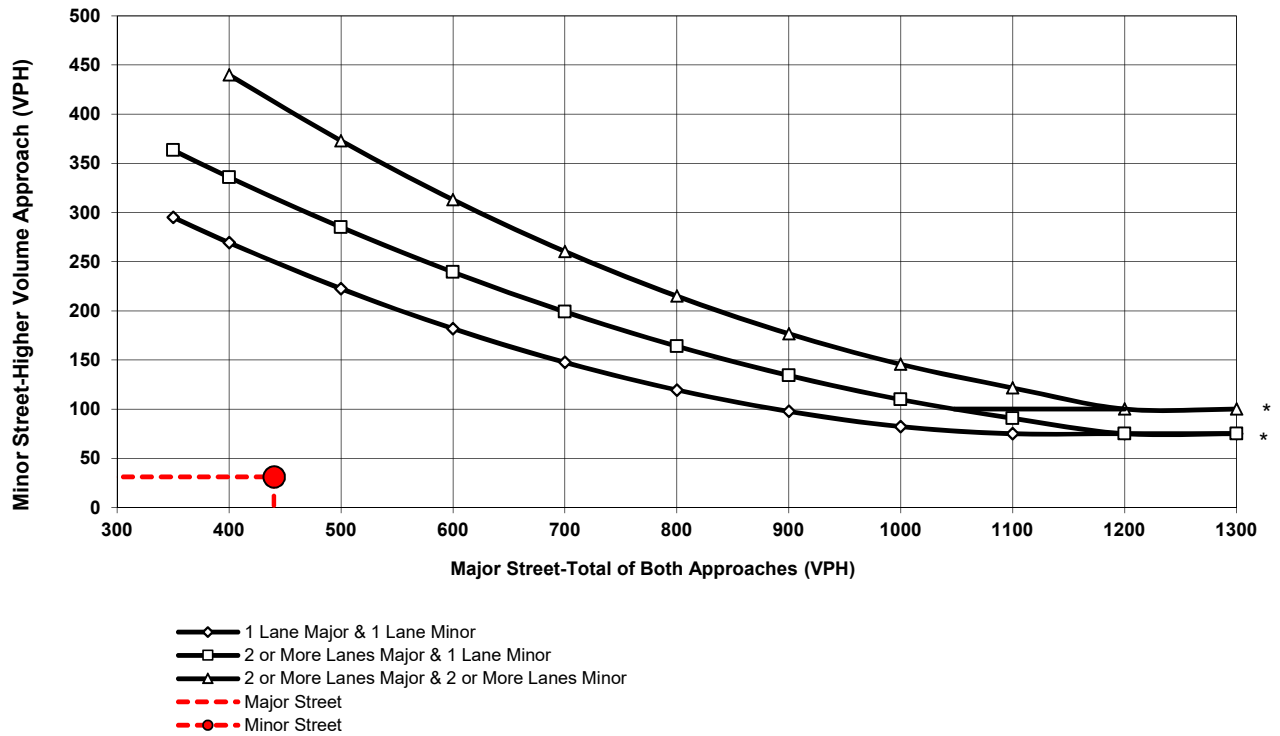
Minor Street: **Wilmot St (NS)**

Total of Both Approaches (VPH): **440**
Number of Approach Lanes: **1**

Higher Volume Approach (VPH): **31**
Number of Approach Lanes: **1**

SIGNAL WARRANT NOT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:
100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**EP Conditions
AM Peak Hour Volume Warrant
Alessandro Blvd/Wilmot St**

EP CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: **PM**

Major Street: **Alessandro Blvd (EW)**

Minor Street: **Wilmot St (NS)**

Total of Both Approaches (VPH): **437**

Higher Volume Approach (VPH): **25**

Number of Approach Lanes: **1**

Number of Approach Lanes: **1**

SIGNAL WARRANT NOT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:
100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**EP Conditions
PM Peak Hour Volume Warrant
Alessandro Blvd/Wilmot St**

EP CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: **AM**

Major Street: **Redlands Blvd (NS)**

Minor Street: **Cactus Ave (EW)**

Total of Both Approaches (VPH): **760**

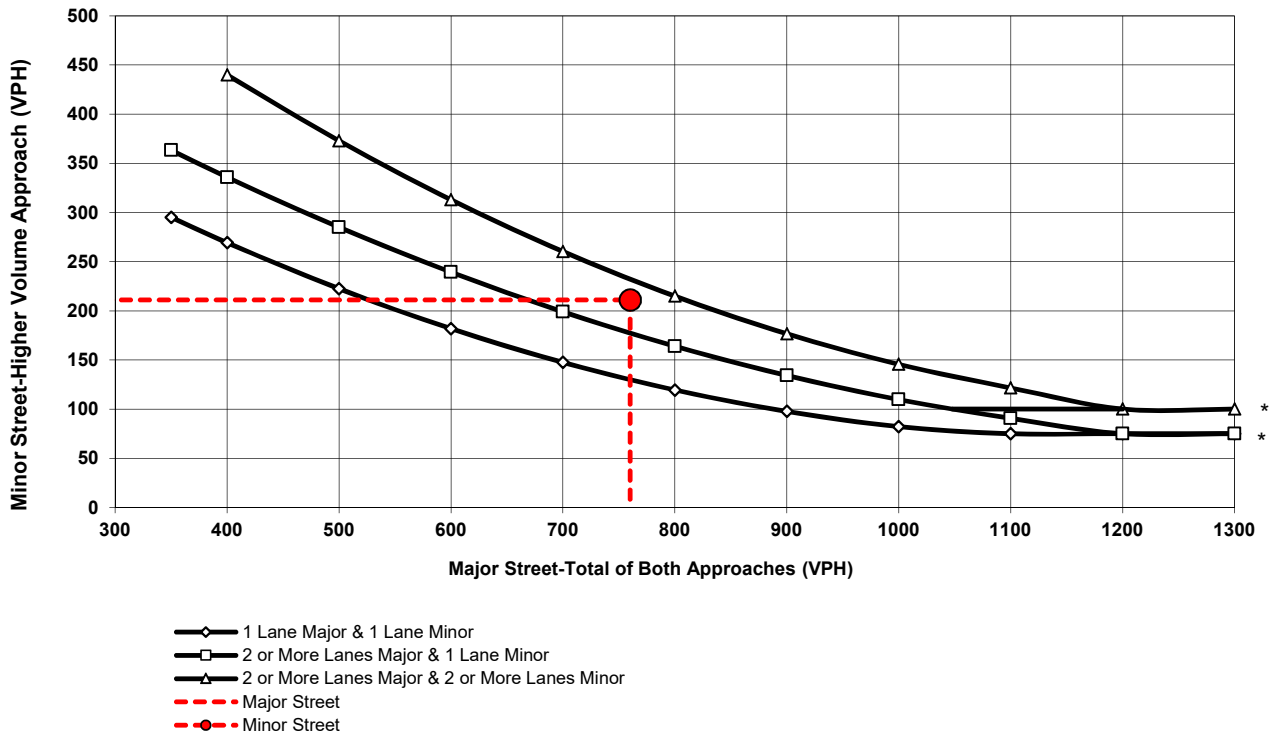
Higher Volume Approach (VPH): **211**

Number of Approach Lanes: **2**

Number of Approach Lanes: **2**

SIGNAL WARRANT NOT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:

100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**EP Conditions
AM Peak Hour Volume Warrant
Cactus Ave/Redlands Blvd**

EP CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: **PM**

Major Street: **Redlands Blvd (NS)**

Minor Street: **Cactus Ave (EW)**

Total of Both Approaches (VPH): **631**

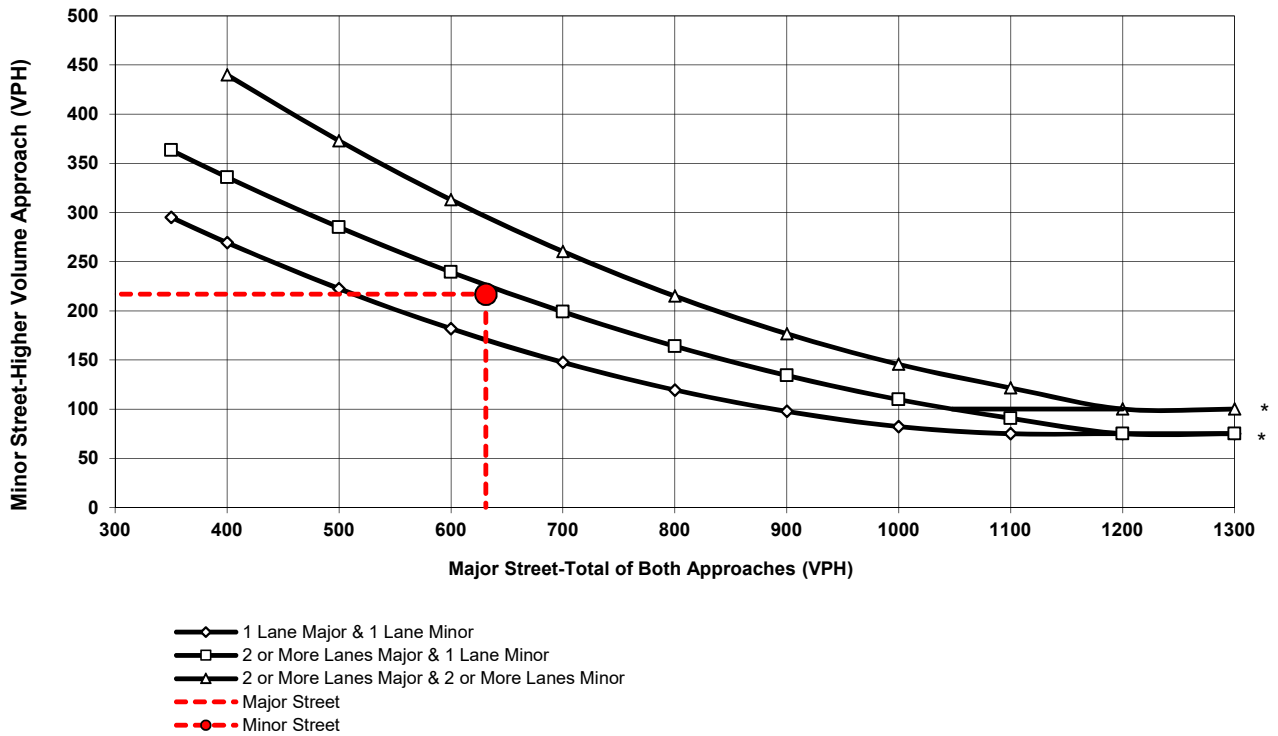
Higher Volume Approach (VPH): **217**

Number of Approach Lanes: **2**

Number of Approach Lanes: **2**

SIGNAL WARRANT NOT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:

100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**EP Conditions
PM Peak Hour Volume Warrant
Cactus Ave/Redlands Blvd**

EP CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: **AM**

Major Street: **Redlands Blvd (NS)**

Minor Street: **Alessandro Blvd (EW)**

Total of Both Approaches (VPH): **897**

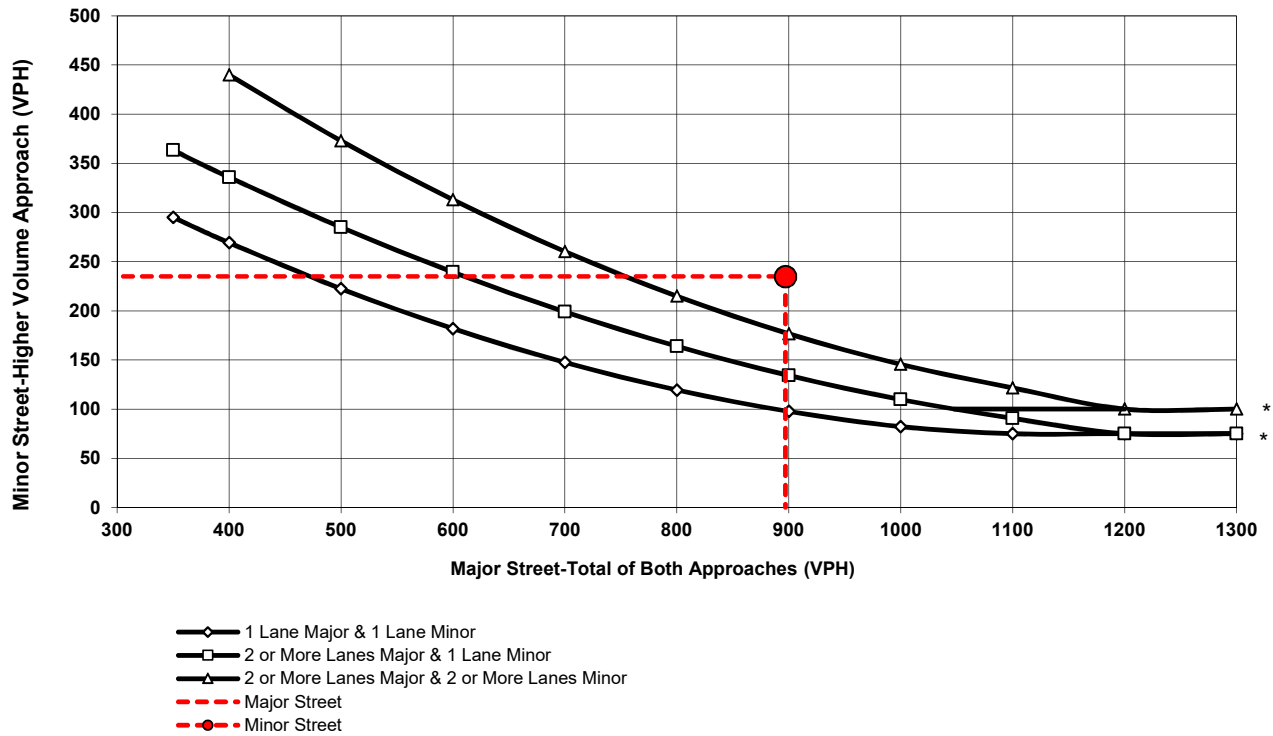
Higher Volume Approach (VPH): **235**

Number of Approach Lanes: **1**

Number of Approach Lanes: **1**

SIGNAL WARRANT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:

100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**EP Conditions
AM Peak Hour Volume Warrant
Alessandro Blvd/Redlands Blvd**

EP CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: **PM**

Major Street: **Redlands Blvd (NS)**

Minor Street: **Alessandro Blvd (EW)**

Total of Both Approaches (VPH): **866**

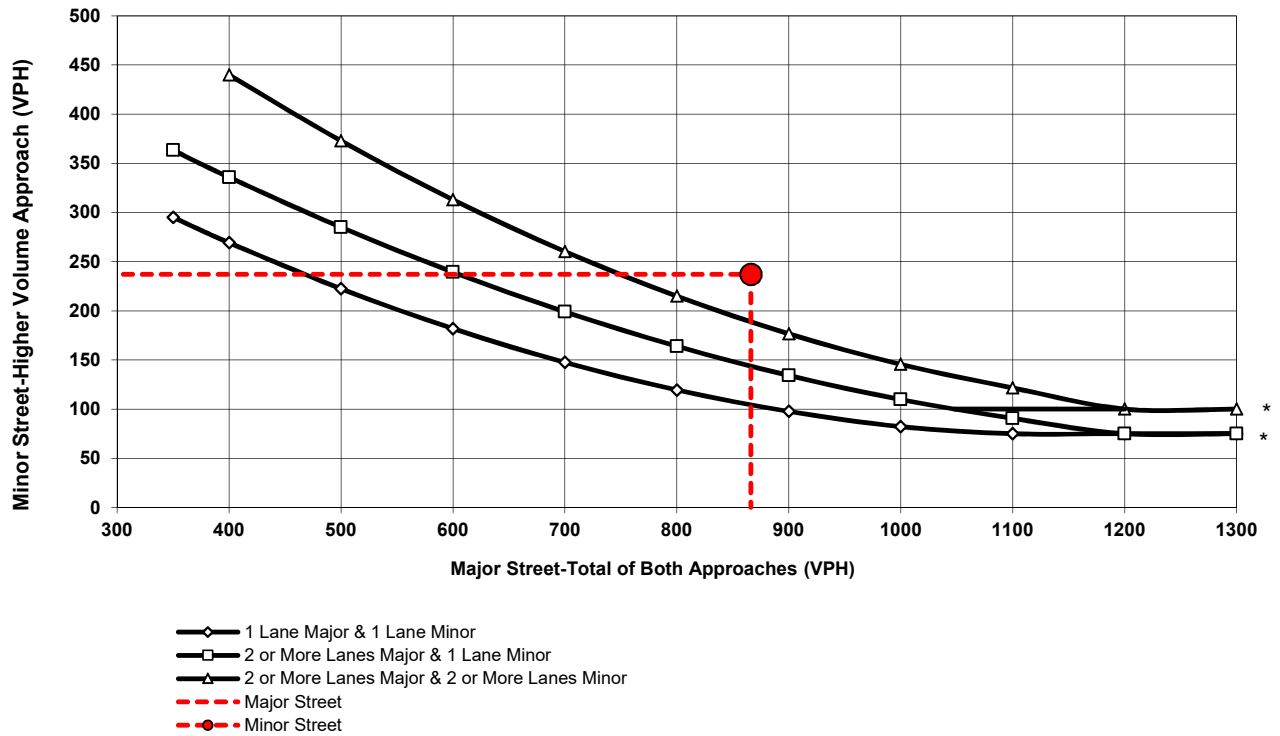
Higher Volume Approach (VPH): **237**

Number of Approach Lanes: **1**

Number of Approach Lanes: **1**

SIGNAL WARRANT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:
100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**EP Conditions
PM Peak Hour Volume Warrant
Alessandro Blvd/Redlands Blvd**

EP CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: **AM**

Major Street: **Alessandro Blvd (EW)**

Minor Street: **Merwin St (NS)**

Total of Both Approaches (VPH): **356**

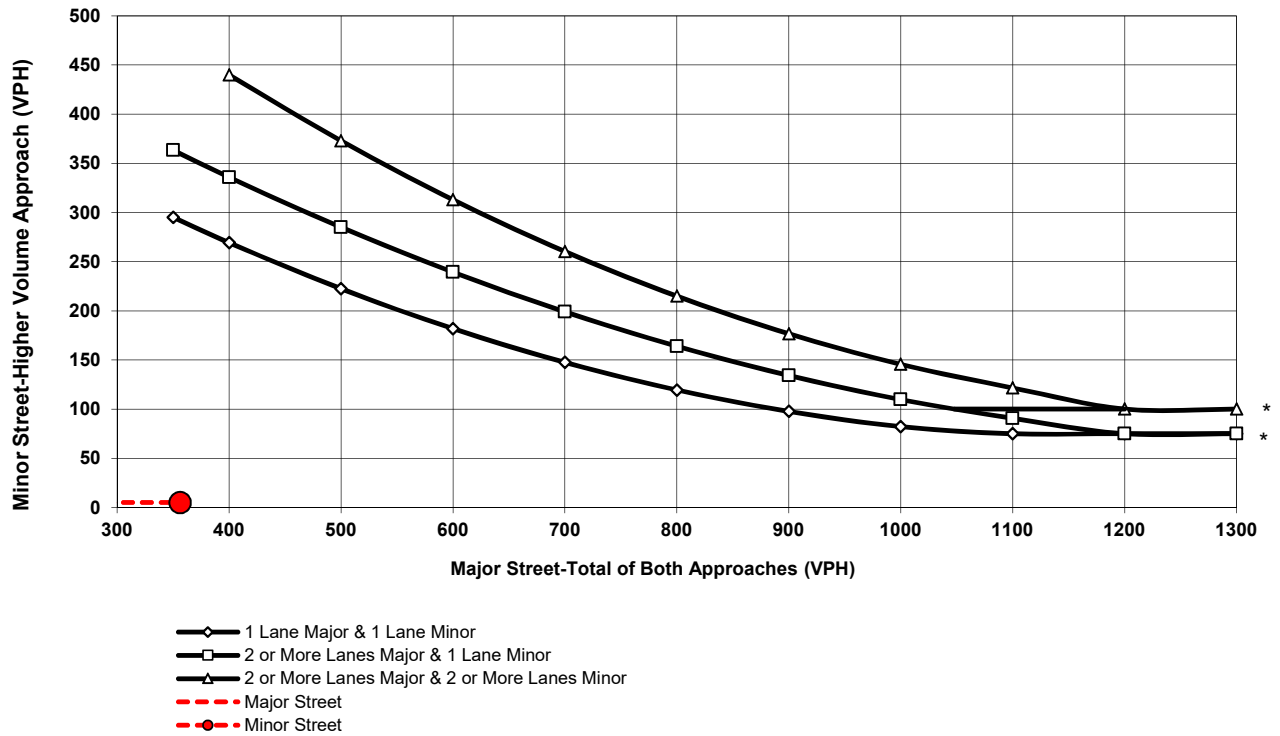
Higher Volume Approach (VPH): **5**

Number of Approach Lanes: **1**

Number of Approach Lanes: **1**

SIGNAL WARRANT NOT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:

100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**EP Conditions
AM Peak Hour Volume Warrant
Alessandro Blvd/Merwin St**

EP CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: **PM**

Major Street: **Alessandro Blvd (EW)**

Minor Street: **Merwin St (NS)**

Total of Both Approaches (VPH): **338**

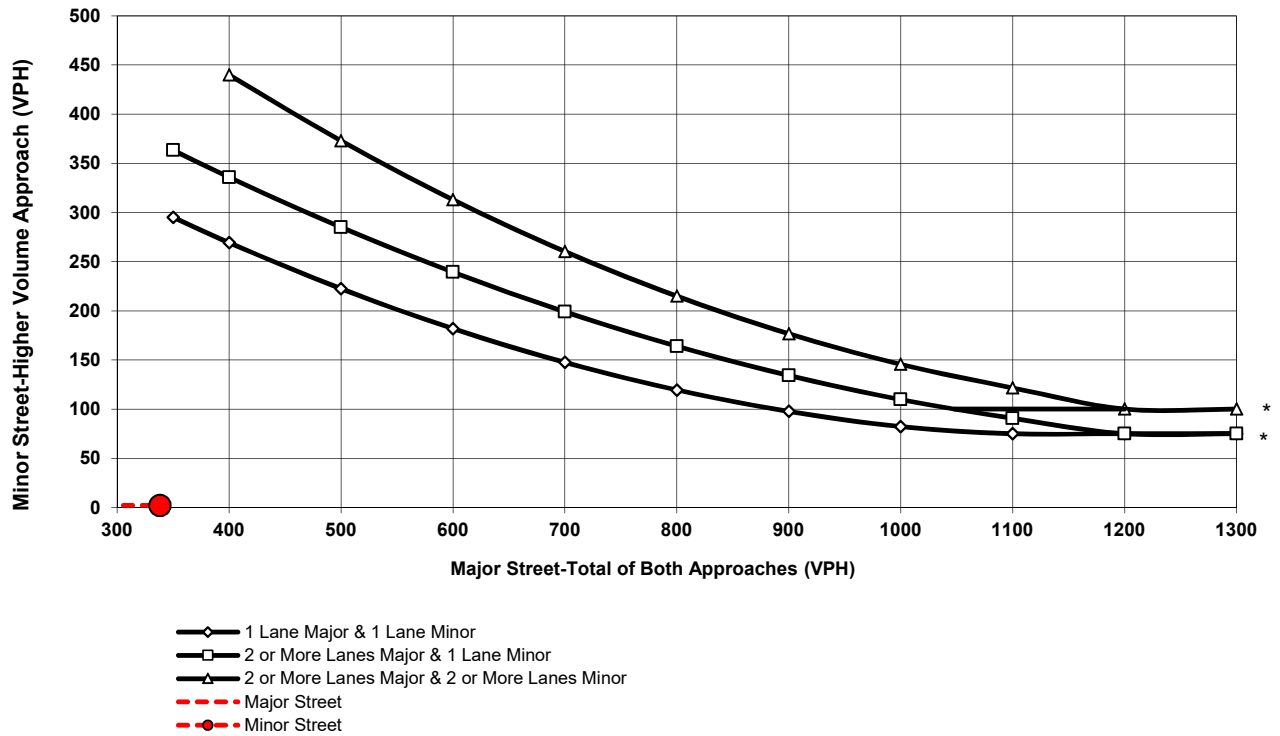
Higher Volume Approach (VPH): **2**

Number of Approach Lanes: **1**

Number of Approach Lanes: **1**

SIGNAL WARRANT NOT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:
100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**EP Conditions
PM Peak Hour Volume Warrant
Alessandro Blvd/Merwin St**

EAC CONDITIONS

EAC CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: **AM**

Major Street: **Alessandro Blvd (EW)**

Minor Street: **Wilmot St (NS)**

Total of Both Approaches (VPH): **502**

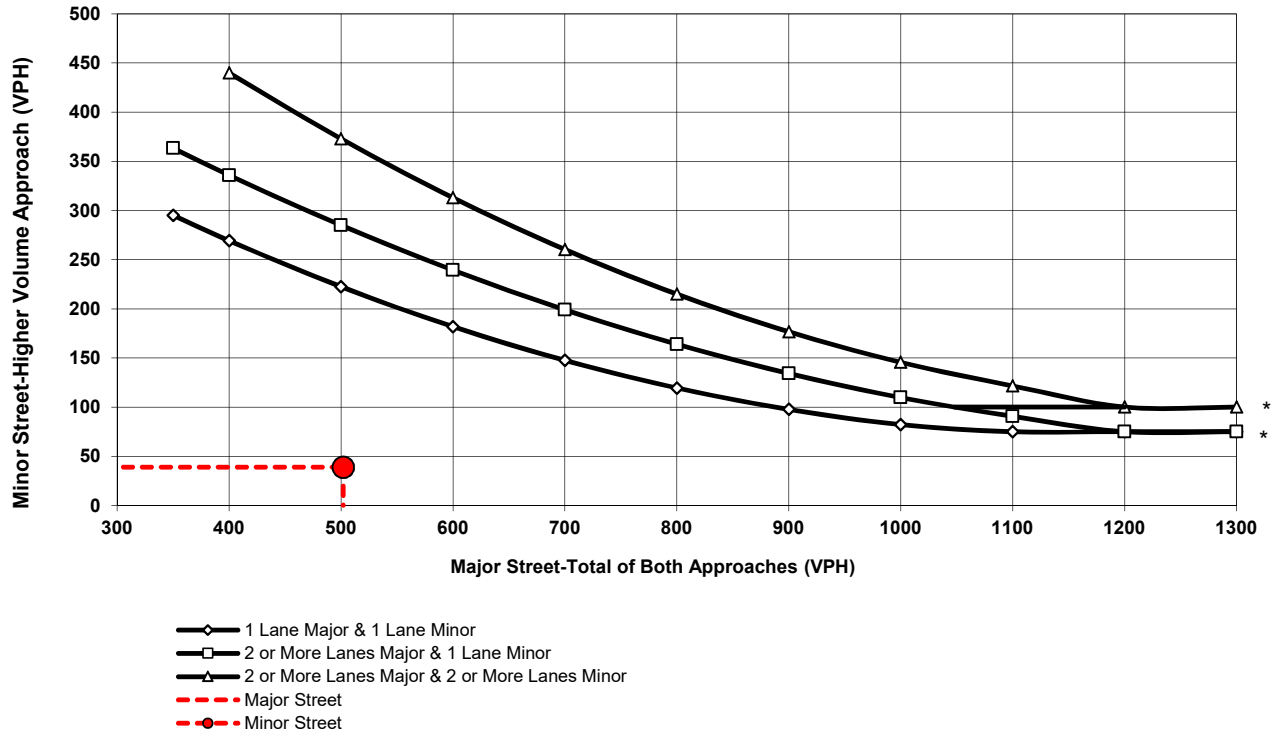
Higher Volume Approach (VPH): **39**

Number of Approach Lanes: **1**

Number of Approach Lanes: **1**

SIGNAL WARRANT NOT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:
100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**EAC Conditions
AM Peak Hour Volume Warrant
Alessandro Blvd/Wilmot St**

EAC CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: **PM**

Major Street: **Alessandro Blvd (EW)**

Minor Street: **Wilmot St (NS)**

Total of Both Approaches (VPH): **510**

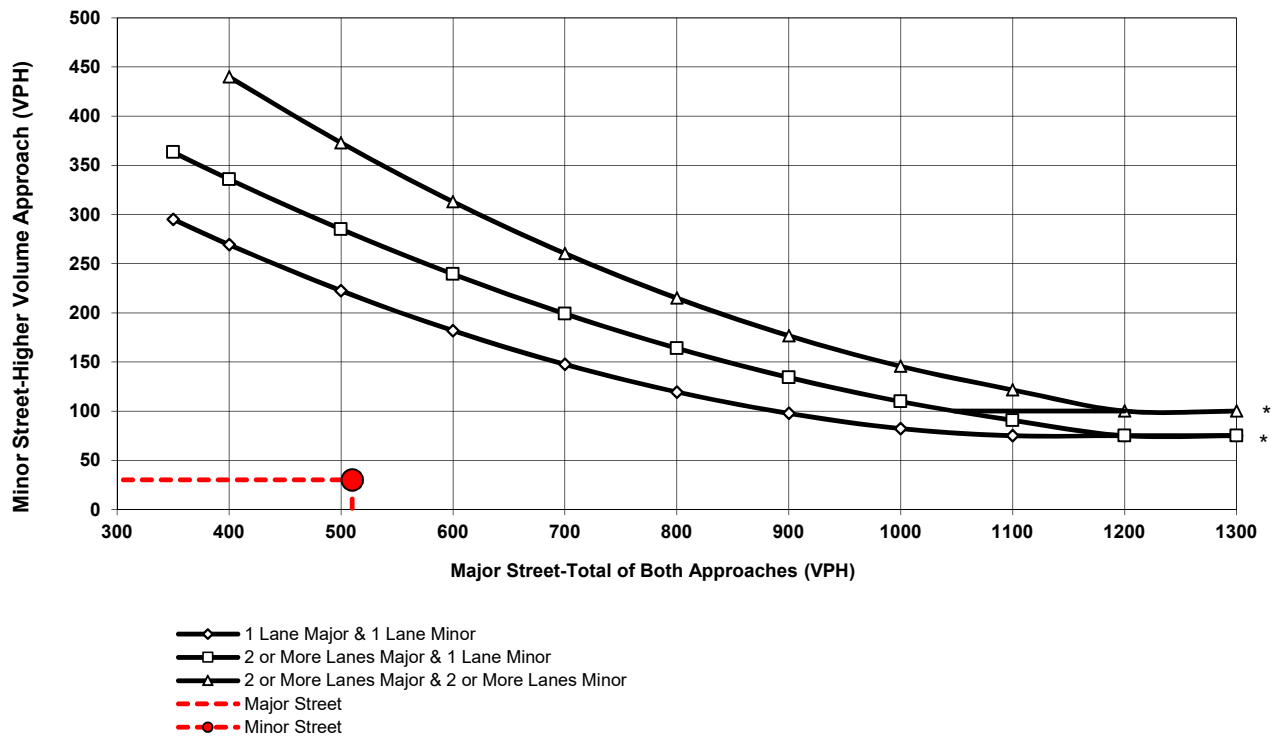
Higher Volume Approach (VPH): **30**

Number of Approach Lanes: **1**

Number of Approach Lanes: **1**

SIGNAL WARRANT NOT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:
100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**EAC Conditions
PM Peak Hour Volume Warrant
Alessandro Blvd/Wilmot St**

EAC CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: **AM**

Major Street: **Redlands Blvd (NS)**

Minor Street: **Cactus Ave (EW)**

Total of Both Approaches (VPH): **844**

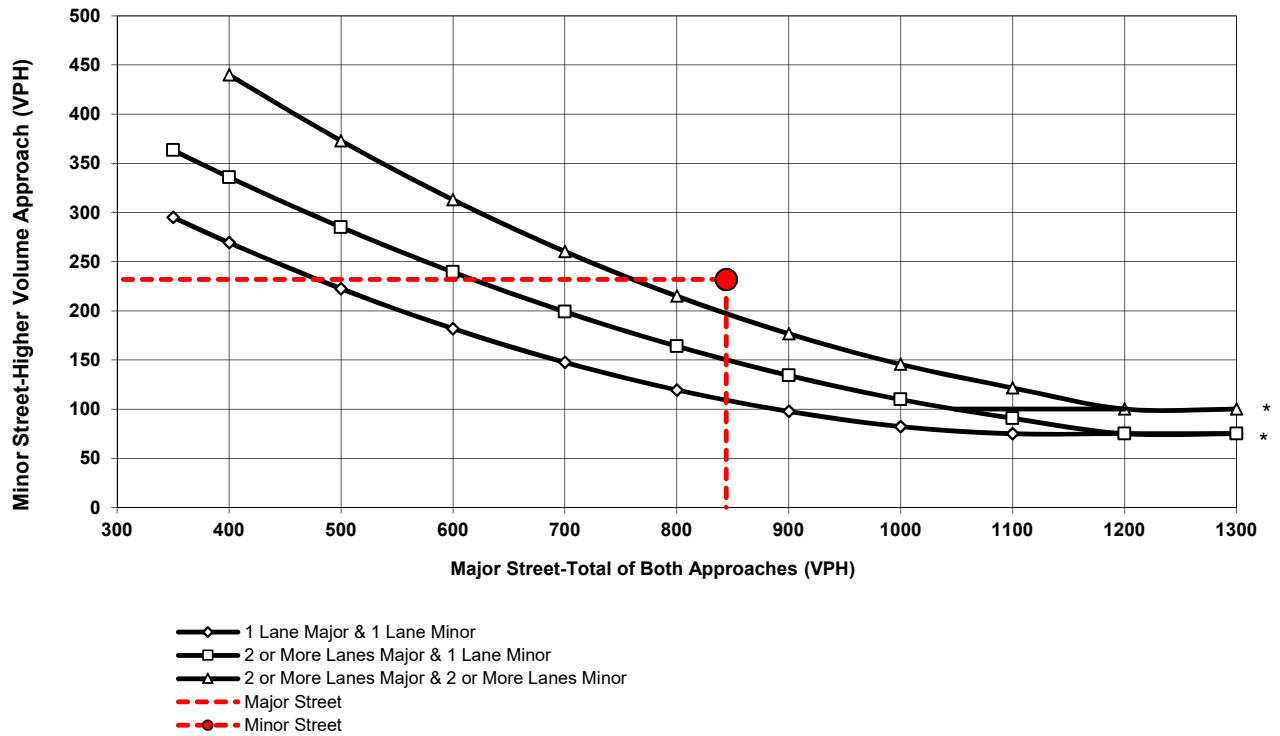
Higher Volume Approach (VPH): **232**

Number of Approach Lanes: **2**

Number of Approach Lanes: **1**

SIGNAL WARRANT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:

100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**EAC Conditions
AM Peak Hour Volume Warrant
Cactus Ave/Redlands Blvd**

EAC CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: PM

Major Street: Redlands Blvd (NS)

Minor Street: Cactus Ave (EW)

Total of Both Approaches (VPH): **705**

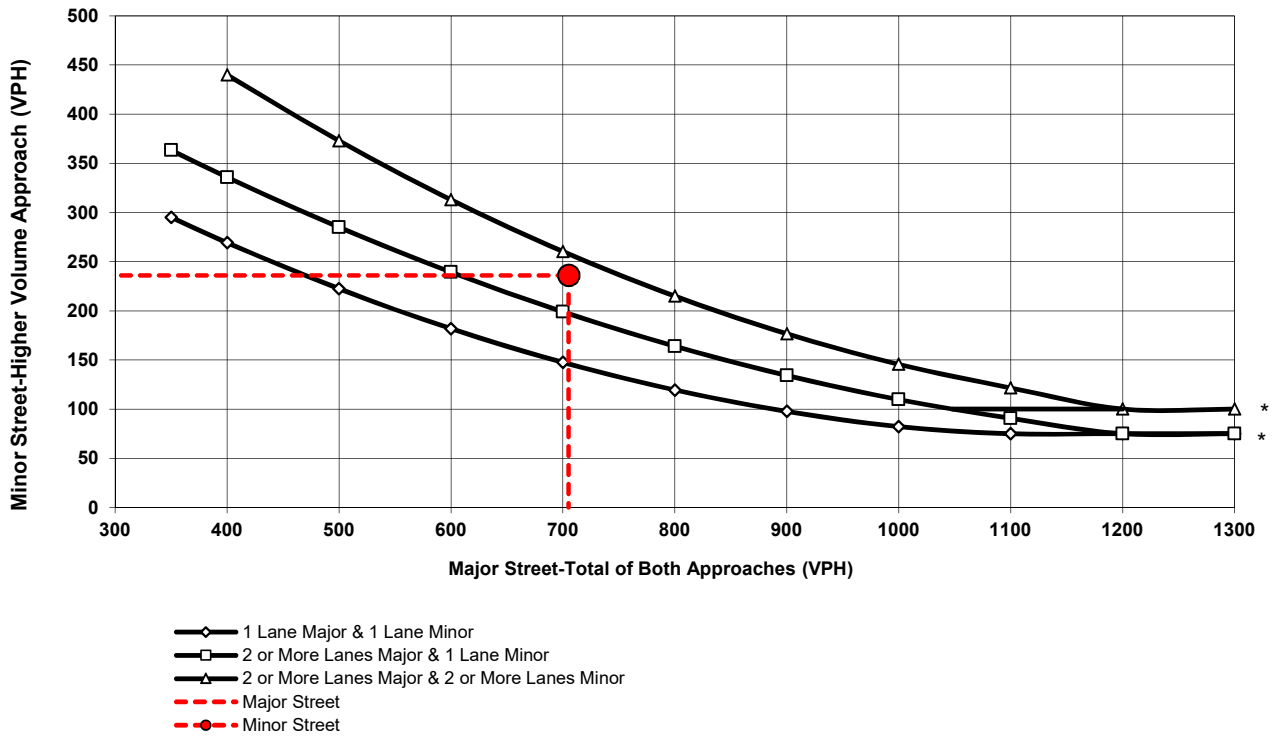
Higher Volume Approach (VPH): **236**

Number of Approach Lanes: **2**

Number of Approach Lanes: **2**

SIGNAL WARRANT NOT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:

100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**EAC Conditions
PM Peak Hour Volume Warrant
Cactus Ave/Redlands Blvd**

EAC CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: **AM**

Major Street: **Redlands Blvd (NS)**

Minor Street: **Alessandro Blvd (EW)**

Total of Both Approaches (VPH): **974**

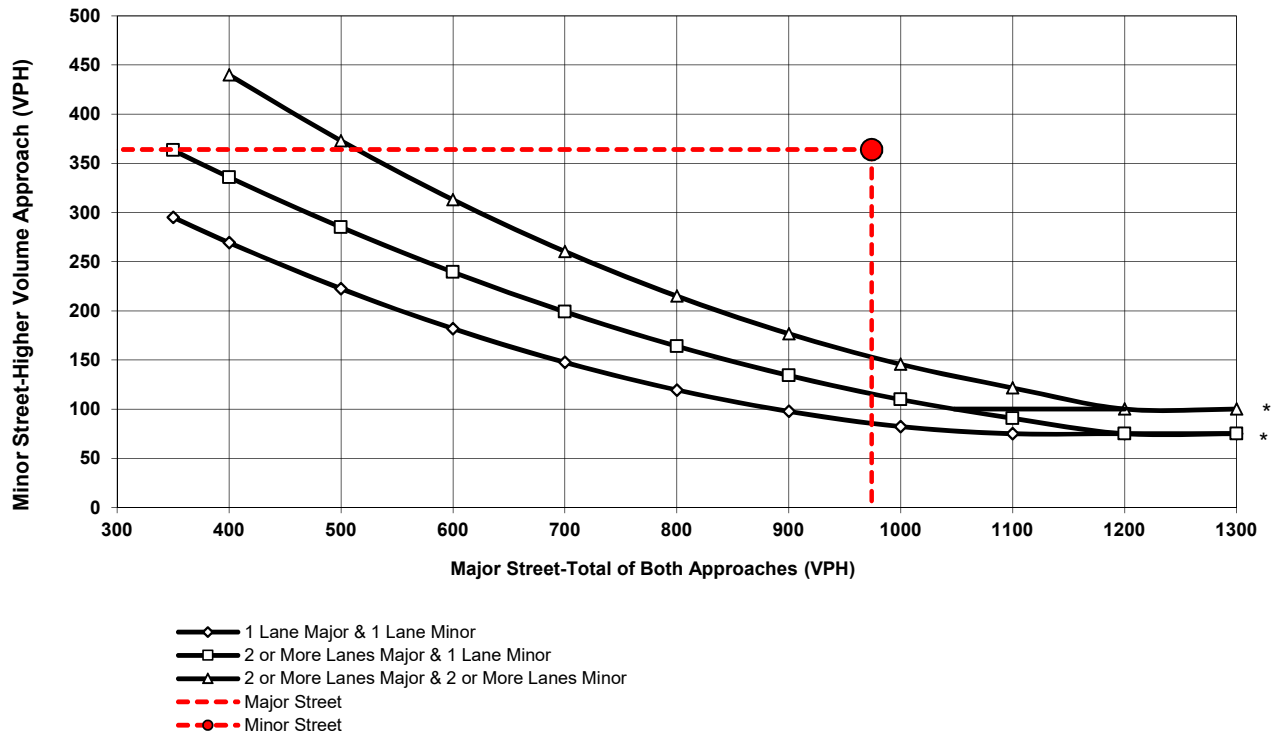
Higher Volume Approach (VPH): **364**

Number of Approach Lanes: **1**

Number of Approach Lanes: **1**

SIGNAL WARRANT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:
100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**EAC Conditions
AM Peak Hour Volume Warrant
Alessandro Blvd/Redlands Blvd**

EAC CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: PM

Major Street: Redlands Blvd (NS)

Minor Street: Alessandro Blvd (EW)

Total of Both Approaches (VPH): **976**

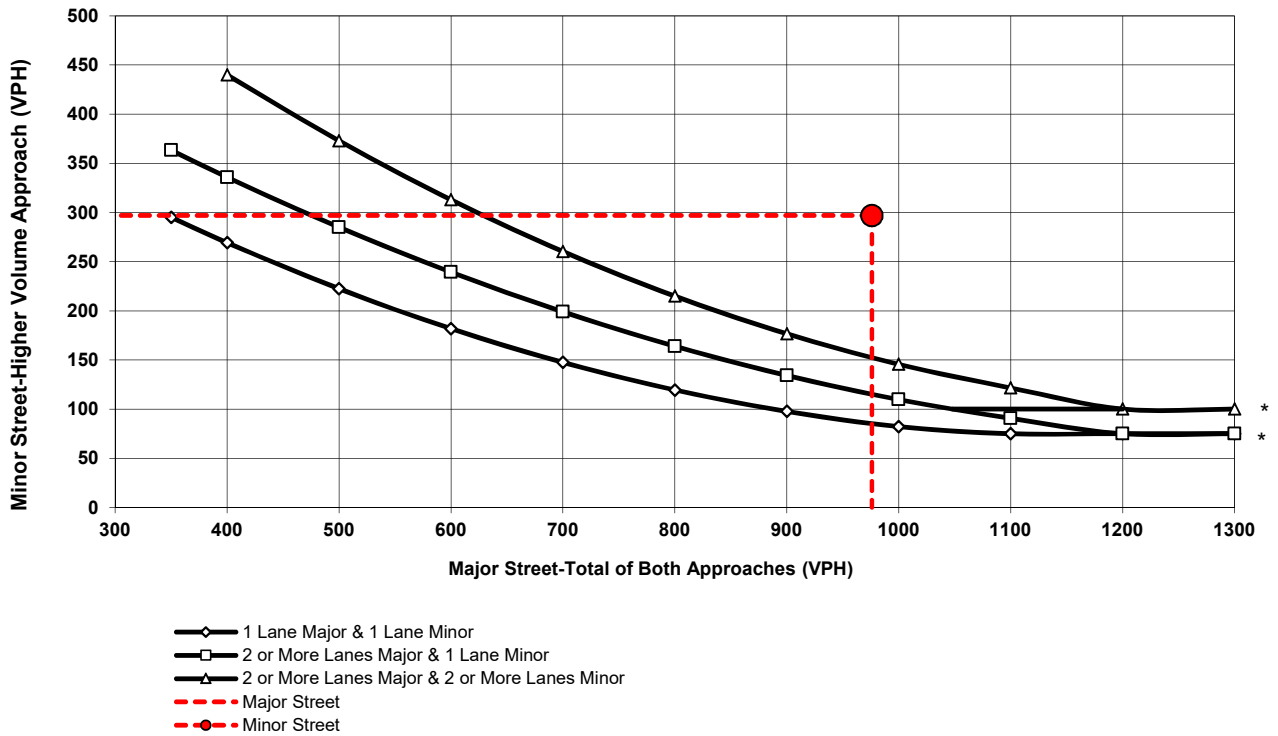
Higher Volume Approach (VPH): **297**

Number of Approach Lanes: **1**

Number of Approach Lanes: **1**

SIGNAL WARRANT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:
100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**EAC Conditions
PM Peak Hour Volume Warrant
Alessandro Blvd/Redlands Blvd**

EAC CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: **AM**

Major Street: **Alessandro Blvd (EW)**

Minor Street: **Merwin St (NS)**

Total of Both Approaches (VPH): **405**

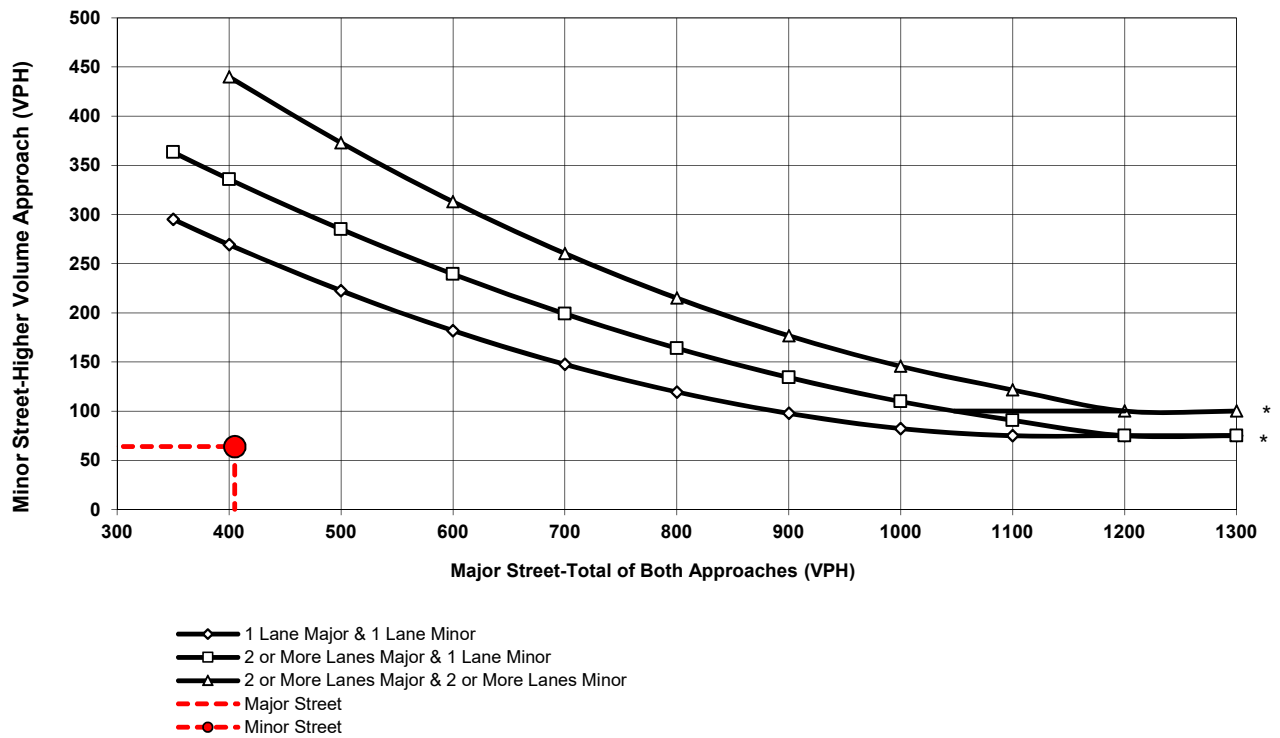
Higher Volume Approach (VPH): **64**

Number of Approach Lanes: **1**

Number of Approach Lanes: **1**

SIGNAL WARRANT NOT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:
100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**EAC Conditions
AM Peak Hour Volume Warrant
Alessandro Blvd/Merwin St**

EAC CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: **PM**

Major Street: **Alessandro Blvd (EW)**

Minor Street: **Merwin St (NS)**

Total of Both Approaches (VPH): **431**

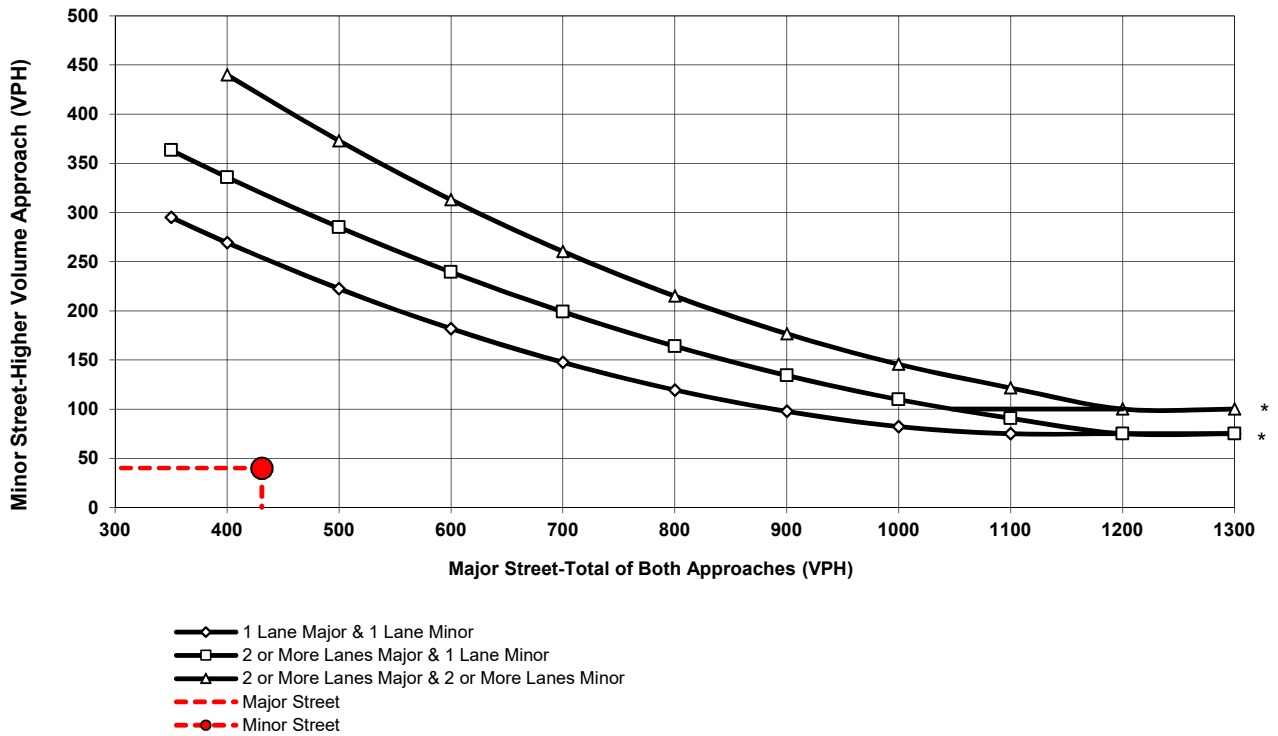
Higher Volume Approach (VPH): **40**

Number of Approach Lanes: **1**

Number of Approach Lanes: **1**

SIGNAL WARRANT NOT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:
100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**EAC Conditions
PM Peak Hour Volume Warrant
Alessandro Blvd/Merwin St**

EACP CONDITIONS

EACP CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: **PM**

Major Street: **Cactus Ave (EW)**

Minor Street: **Redlands Blvd (NS)**

Total of Both Approaches (VPH): **708**

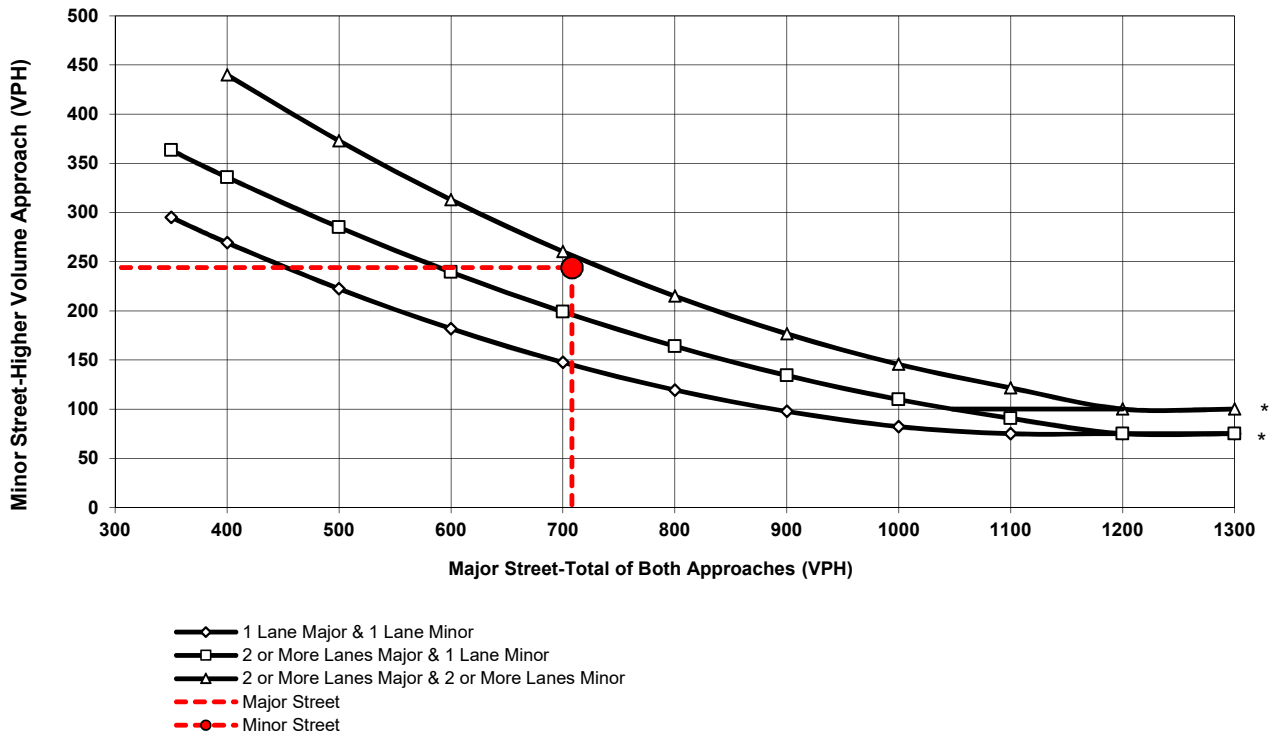
Higher Volume Approach (VPH): **244**

Number of Approach Lanes: **2**

Number of Approach Lanes: **2**

SIGNAL WARRANT NOT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:
100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**EACP Conditions
PM Peak Hour Volume Warrant
Cactus Ave/Redlands Blvd**

EACP CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: **AM**

Major Street: **Alessandro Blvd (EW)**

Minor Street: **Wilmot St (NS)**

Total of Both Approaches (VPH): **546**

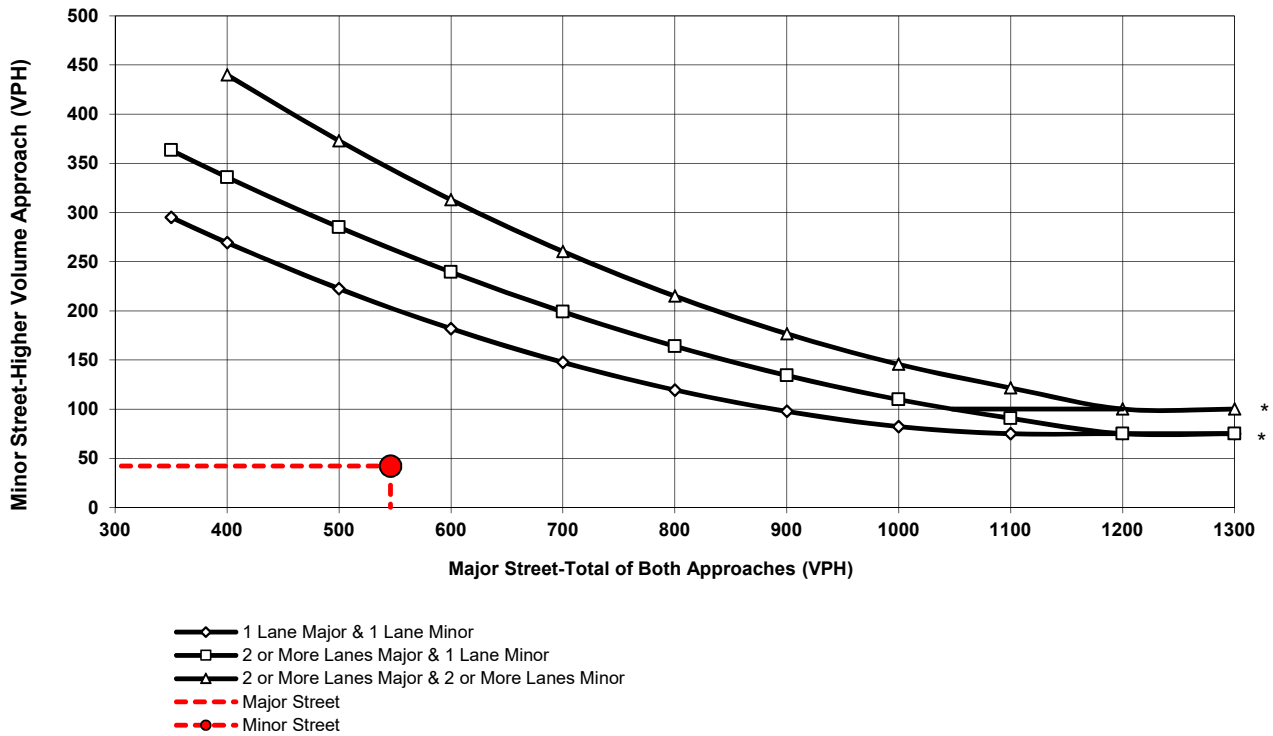
Higher Volume Approach (VPH): **42**

Number of Approach Lanes: **1**

Number of Approach Lanes: **1**

SIGNAL WARRANT NOT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:
100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**EACP Conditions
AM Peak Hour Volume Warrant
Alessandro Blvd/Wilmot St**

EACP CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: **PM**

Major Street: **Alessandro Blvd (EW)**

Minor Street: **Wilmot St (NS)**

Total of Both Approaches (VPH): **569**

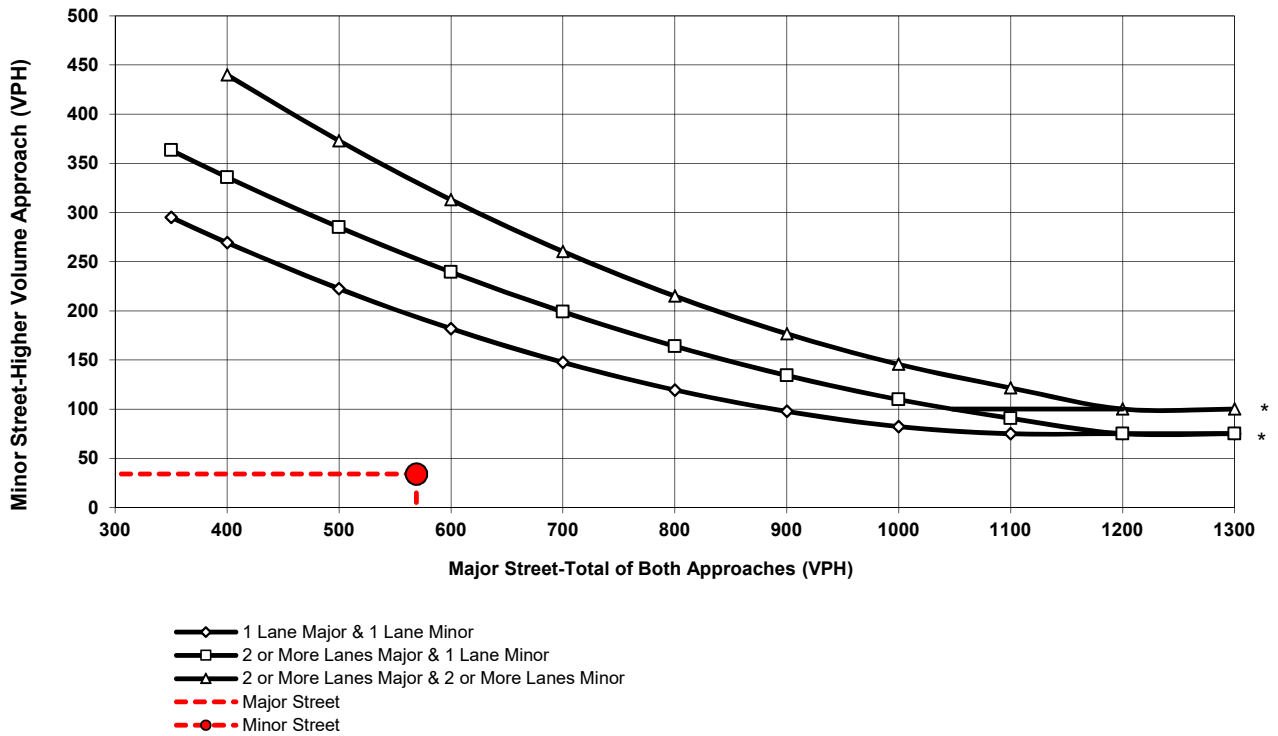
Higher Volume Approach (VPH): **34**

Number of Approach Lanes: **1**

Number of Approach Lanes: **1**

SIGNAL WARRANT NOT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:
100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**EACP Conditions
PM Peak Hour Volume Warrant
Alessandro Blvd/Wilmot St**

EACP CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: **AM**

Major Street: **Alessandro Blvd (EW)**

Minor Street: **Merwin St (NS)**

Total of Both Approaches (VPH): **411**

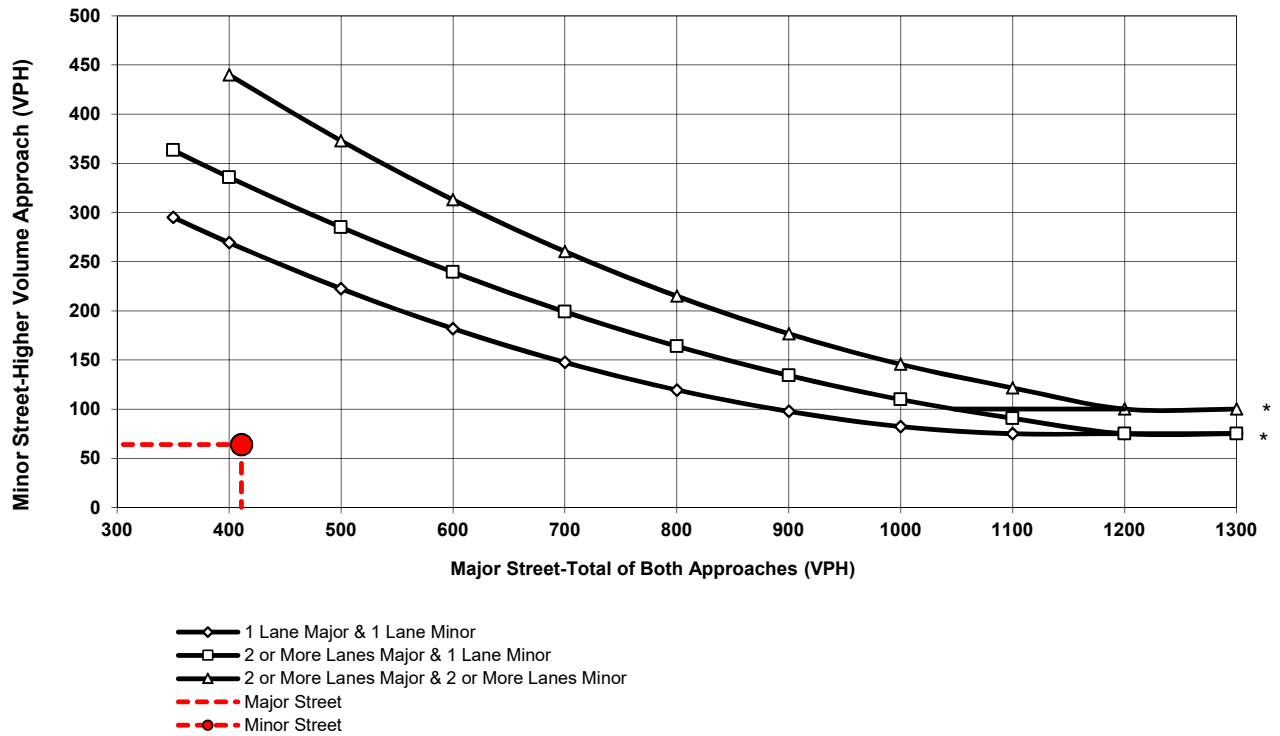
Higher Volume Approach (VPH): **64**

Number of Approach Lanes: **1**

Number of Approach Lanes: **1**

SIGNAL WARRANT NOT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:
100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**EACP Conditions
AM Peak Hour Volume Warrant
Alessandro Blvd/Merwin St**

EACP CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: **PM**

Major Street: **Alessandro Blvd (EW)**

Minor Street: **Merwin St (NS)**

Total of Both Approaches (VPH): **438**

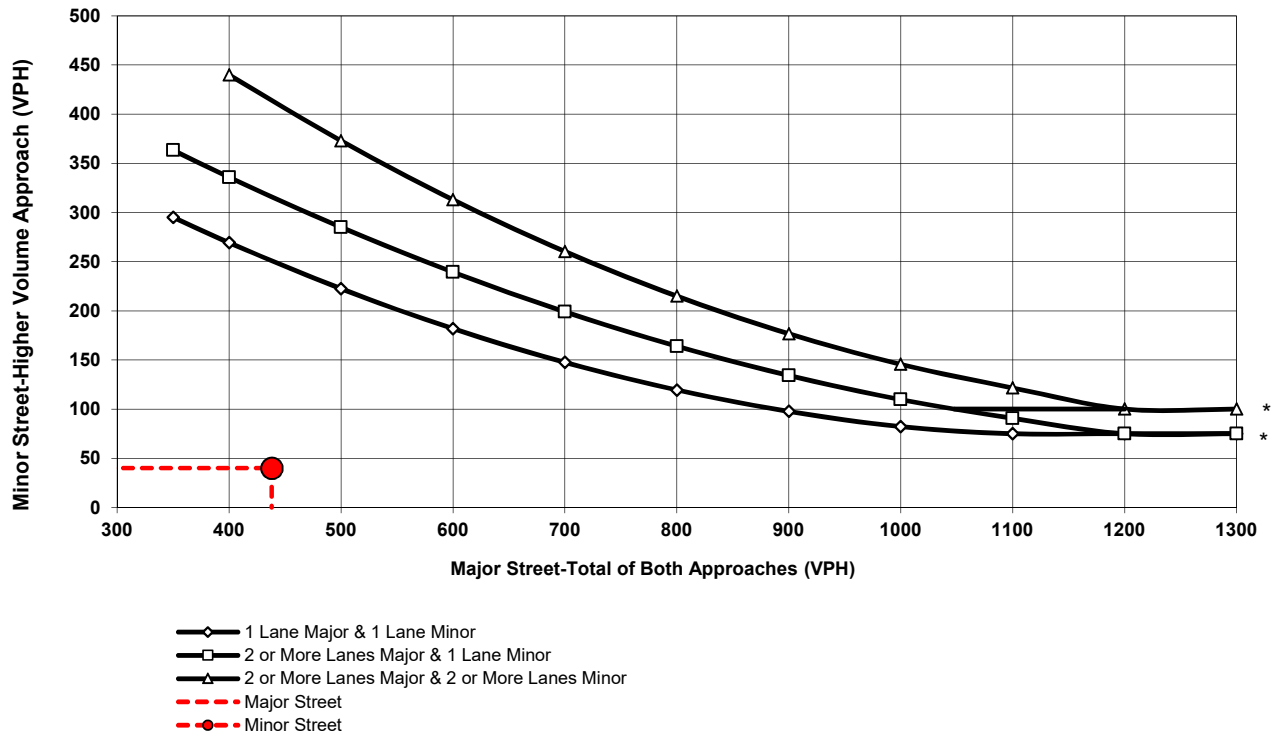
Higher Volume Approach (VPH): **40**

Number of Approach Lanes: **1**

Number of Approach Lanes: **1**

SIGNAL WARRANT NOT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:
100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**EACP Conditions
PM Peak Hour Volume Warrant
Alessandro Blvd/Merwin St**

EACP CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: **AM**

Major Street: **Redlands Blvd (NS)**

Minor Street: **Alessandro Blvd (EW)**

Total of Both Approaches (VPH): **1008**

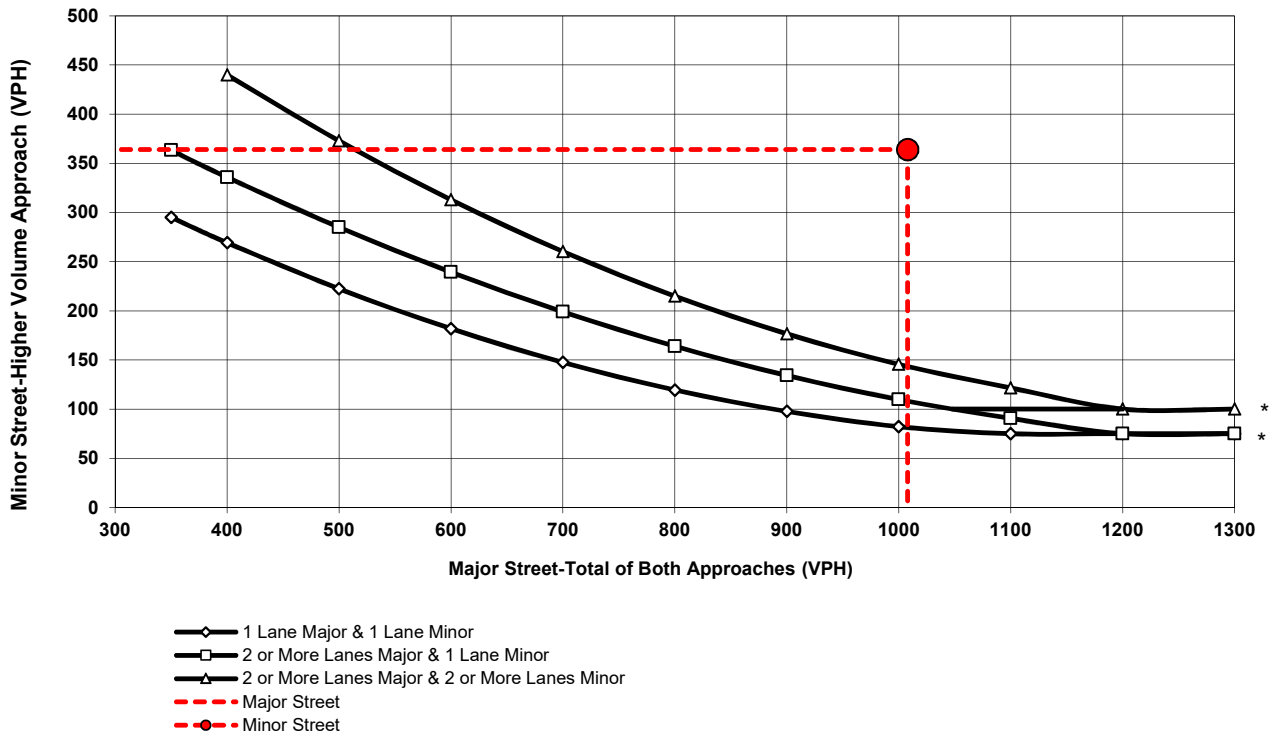
Higher Volume Approach (VPH): **364**

Number of Approach Lanes: **1**

Number of Approach Lanes: **1**

SIGNAL WARRANT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:
100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**EACP Conditions
AM Peak Hour Volume Warrant
Alessandro Blvd/Redlands Blvd**

EACP CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: **PM**

Major Street: **Redlands Blvd (NS)**

Minor Street: **Alessandro Blvd (EW)**

Total of Both Approaches (VPH): **1019**

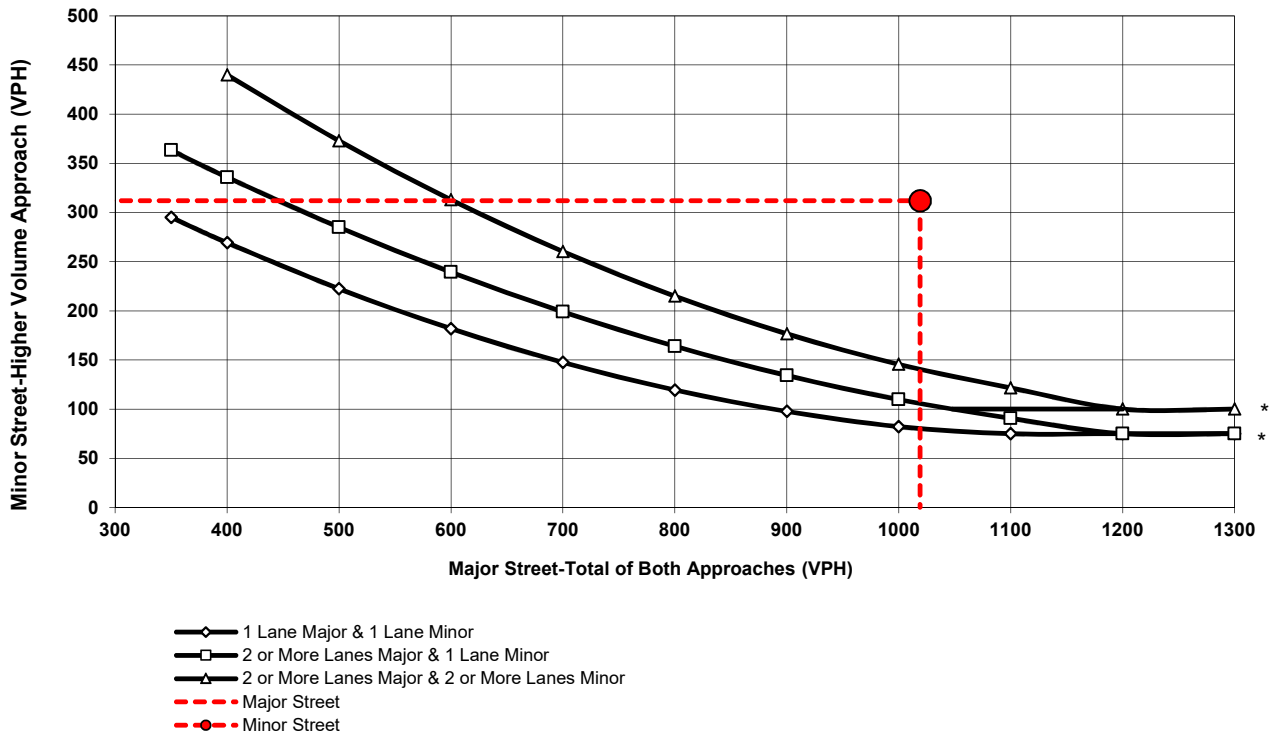
Higher Volume Approach (VPH): **312**

Number of Approach Lanes: **1**

Number of Approach Lanes: **1**

SIGNAL WARRANT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:
100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**EACP Conditions
PM Peak Hour Volume Warrant
Alessandro Blvd/Redlands Blvd**

EACP CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: **AM**

Major Street: **Redlands Blvd (NS)**

Minor Street: **Cactus Ave (EW)**

Total of Both Approaches (VPH): **846**

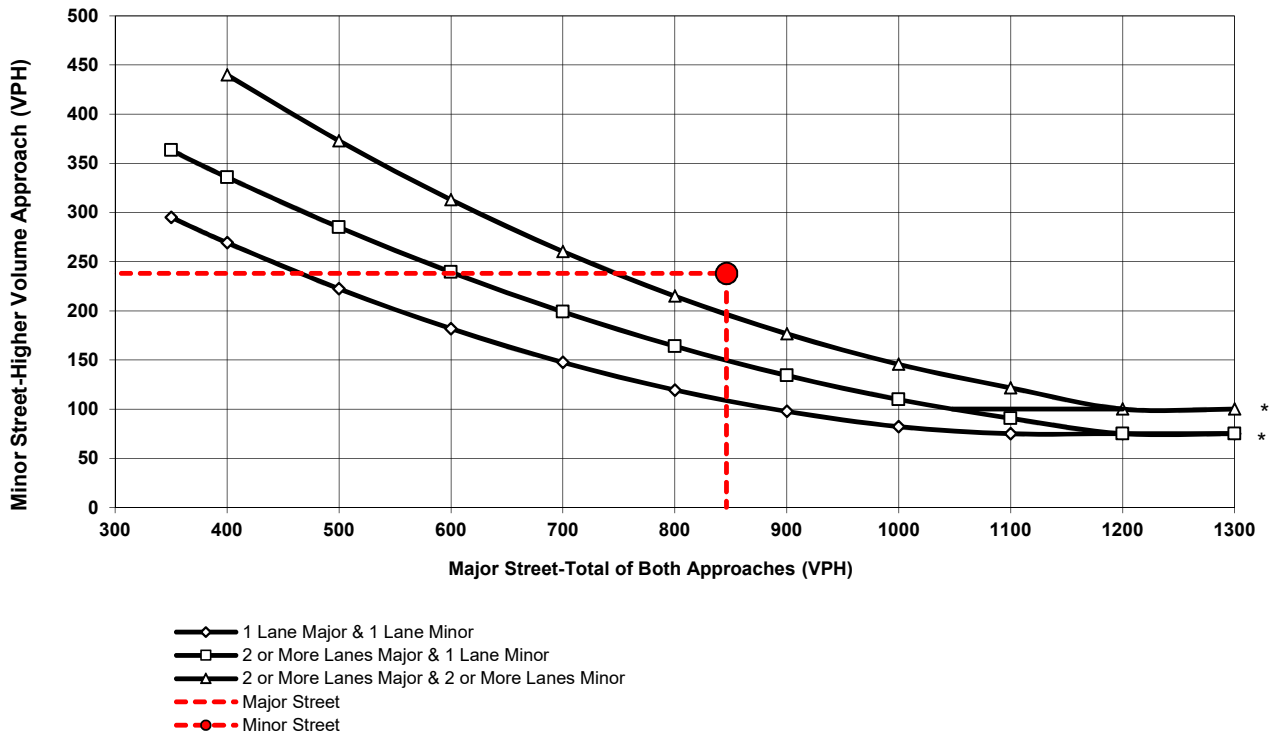
Higher Volume Approach (VPH): **238**

Number of Approach Lanes: **2**

Number of Approach Lanes: **2**

SIGNAL WARRANT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:
100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**EACP Conditions
AM Peak Hour Volume Warrant
Cactus Ave/Redlands Blvd**

APPENDIX E
QUEUING ANALYSIS SHEETS

Redlands Alessandro TIA
2: Redlands Bl & Cottonwood Av

EP Conditions AM Peak Hour
Queues



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	42	55	36	476	336	33
v/c Ratio	0.20	0.24	0.18	0.32	0.25	0.03
Control Delay	27.8	11.0	27.9	3.1	5.7	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.8	11.0	27.9	3.1	5.7	2.7
Queue Length 50th (ft)	15	0	13	40	26	0
Queue Length 95th (ft)	40	28	37	80	110	10
Internal Link Dist (ft)	2323		2623		422	
Turn Bay Length (ft)				140		
Base Capacity (vph)	522	506	220	1496	1360	1165
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.11	0.16	0.32	0.25	0.03
Intersection Summary						

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
3: Redlands BI & Alessandro BI

EP Conditions AM Peak Hour
HCM 6th AWSC

Intersection

Intersection Delay, s/veh 49.2

Intersection LOS E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕		↕			↕	↕		↕	
Traffic Vol, veh/h	53	65	27	70	154	11	51	408	77	26	276	92
Future Vol, veh/h	53	65	27	70	154	11	51	408	77	26	276	92
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	58	71	29	76	167	12	55	443	84	28	300	100
Number of Lanes	0	1	1	0	1	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	2
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	1	2	2	1
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	2	1	1	2
HCM Control Delay	15.4	24.2	69.9	48.3
HCM LOS	C	C	F	E

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	11%	0%	45%	0%	30%	7%
Vol Thru, %	89%	0%	55%	0%	66%	70%
Vol Right, %	0%	100%	0%	100%	5%	23%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	459	77	118	27	235	394
LT Vol	51	0	53	0	70	26
Through Vol	408	0	65	0	154	276
RT Vol	0	77	0	27	11	92
Lane Flow Rate	499	84	128	29	255	428
Geometry Grp	7	7	7	7	6	6
Degree of Util (X)	1.042	0.157	0.323	0.066	0.605	0.899
Departure Headway (Hd)	7.519	6.741	9.24	8.276	8.7	7.706
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	484	536	391	436	416	475
Service Time	5.219	4.441	6.94	5.976	6.7	5.706
HCM Lane V/C Ratio	1.031	0.157	0.327	0.067	0.613	0.901
HCM Control Delay	79.8	10.7	16.3	11.6	24.2	48.3
HCM Lane LOS	F	B	C	B	C	E
HCM 95th-tile Q	15	0.6	1.4	0.2	3.9	9.9

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
4: Redlands Bl & Cactus Av

EP Conditions AM Peak Hour
HCM 6th AWSC

Intersection

Intersection Delay, s/veh 14.6

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕	↗		↕			↕↕	↗		↕	↗
Traffic Vol, veh/h	130	7	74	1	14	21	21	349	0	3	279	108
Future Vol, veh/h	130	7	74	1	14	21	21	349	0	3	279	108
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	148	8	84	1	16	24	24	397	0	3	317	123
Number of Lanes	0	2	1	0	1	0	0	2	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	3	2	3
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	2	3	3	1
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	3	2	1	3
HCM Control Delay	12.3	11.1	14.5	16.3
HCM LOS	B	B	B	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	SBLn1	SBLn2
Vol Left, %	15%	0%	0%	98%	0%	0%	3%	1%	0%
Vol Thru, %	85%	100%	100%	2%	100%	0%	39%	99%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	58%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	137	233	0	132	5	74	36	282	108
LT Vol	21	0	0	130	0	0	1	3	0
Through Vol	116	233	0	2	5	0	14	279	0
RT Vol	0	0	0	0	0	74	21	0	108
Lane Flow Rate	156	264	0	150	5	84	41	320	123
Geometry Grp	8	8	8	7	7	7	8	8	8
Degree of Util (X)	0.293	0.491	0	0.312	0.01	0.146	0.087	0.592	0.202
Departure Headway (Hd)	6.759	6.682	6.682	7.467	6.966	6.254	7.677	6.652	5.938
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	529	537	0	480	511	569	470	538	600
Service Time	4.542	4.465	4.465	5.247	4.747	4.034	5.377	4.434	3.719
HCM Lane V/C Ratio	0.295	0.492	0	0.313	0.01	0.148	0.087	0.595	0.205
HCM Control Delay	12.4	15.8	9.5	13.6	9.8	10.1	11.1	18.7	10.2
HCM Lane LOS	B	C	N	B	A	B	B	C	B
HCM 95th-tile Q	1.2	2.7	0	1.3	0	0.5	0.3	3.8	0.7

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
2: Redlands Bl & Cottonwood Av

EP Conditions PM Peak Hour
Queues



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	26	32	28	340	477	53
v/c Ratio	0.13	0.16	0.14	0.21	0.33	0.04
Control Delay	27.0	12.2	27.1	2.1	5.6	2.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.0	12.2	27.1	2.1	5.6	2.2
Queue Length 50th (ft)	9	0	10	26	40	0
Queue Length 95th (ft)	29	22	31	48	160	12
Internal Link Dist (ft)	2323		2623		422	
Turn Bay Length (ft)				140		
Base Capacity (vph)	519	487	218	1593	1458	1250
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.07	0.13	0.21	0.33	0.04
Intersection Summary						

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
3: Redlands BI & Alessandro BI

EP Conditions PM Peak Hour
HCM 6th AWSC

Intersection

Intersection Delay, s/veh 41.9

Intersection LOS E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔		↔			↔	↔		↔	
Traffic Vol, veh/h	79	151	22	47	60	18	58	285	67	52	393	56
Future Vol, veh/h	79	151	22	47	60	18	58	285	67	52	393	56
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	82	157	23	49	63	19	60	297	70	54	409	58
Number of Lanes	0	1	1	0	1	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	2
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	1	2	2	1
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	2	1	1	2
HCM Control Delay	19.3	15.7	23.9	74.6
HCM LOS	C	C	C	F

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	17%	0%	34%	0%	38%	10%
Vol Thru, %	83%	0%	66%	0%	48%	78%
Vol Right, %	0%	100%	0%	100%	14%	11%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	343	67	230	22	125	501
LT Vol	58	0	79	0	47	52
Through Vol	285	0	151	0	60	393
RT Vol	0	67	0	22	18	56
Lane Flow Rate	357	70	240	23	130	522
Geometry Grp	7	7	7	7	6	6
Degree of Util (X)	0.714	0.126	0.534	0.045	0.306	1.03
Departure Headway (Hd)	7.443	6.636	8.298	7.396	8.825	7.102
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	489	544	438	487	410	517
Service Time	5.143	4.336	5.998	5.096	6.825	5.103
HCM Lane V/C Ratio	0.73	0.129	0.548	0.047	0.317	1.01
HCM Control Delay	26.6	10.3	20.1	10.4	15.7	74.6
HCM Lane LOS	D	B	C	B	C	F
HCM 95th-tile Q	5.6	0.4	3.1	0.1	1.3	15

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
4: Redlands Bl & Cactus Av

EP Conditions PM Peak Hour
HCM 6th AWSC

Intersection

Intersection Delay, s/veh 13

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕	↗		↕			↕↕	↗		↕	↗
Traffic Vol, veh/h	167	14	36	0	6	11	11	190	0	18	304	108
Future Vol, veh/h	167	14	36	0	6	11	11	190	0	18	304	108
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	176	15	38	0	6	12	12	200	0	19	320	114
Number of Lanes	0	2	1	0	1	0	0	2	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	3	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	3	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	1	3
HCM Control Delay	12.3	9.8	10.9	14.5
HCM LOS	B	A	B	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	SBLn1	SBLn2
Vol Left, %	15%	0%	0%	97%	0%	0%	0%	6%	0%
Vol Thru, %	85%	100%	100%	3%	100%	0%	35%	94%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	65%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	74	127	0	172	9	36	17	322	108
LT Vol	11	0	0	167	0	0	0	18	0
Through Vol	63	127	0	5	9	0	6	304	0
RT Vol	0	0	0	0	0	36	11	0	108
Lane Flow Rate	78	133	0	181	10	38	18	339	114
Geometry Grp	8	8	8	7	7	7	8	8	8
Degree of Util (X)	0.142	0.239	0	0.344	0.017	0.059	0.034	0.565	0.166
Departure Headway (Hd)	6.538	6.463	6.463	6.853	6.361	5.652	6.763	6.002	5.269
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	548	555	0	526	563	633	528	600	680
Service Time	4.283	4.208	4.208	4.593	4.101	3.392	4.523	3.738	3.005
HCM Lane V/C Ratio	0.142	0.24	0	0.344	0.018	0.06	0.034	0.565	0.168
HCM Control Delay	10.4	11.2	9.2	13.2	9.2	8.7	9.8	16.3	9.1
HCM Lane LOS	B	B	N	B	A	A	A	C	A
HCM 95th-tile Q	0.5	0.9	0	1.5	0.1	0.2	0.1	3.5	0.6

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Redlands Alessandro TIA
2: Redlands Bl & Cottonwood Av

EACP Conditions AM Peak Hour
Queues



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	51	62	46	574	386	38
v/c Ratio	0.24	0.25	0.23	0.38	0.30	0.03
Control Delay	28.2	10.7	28.8	3.6	7.1	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.2	10.7	28.8	3.6	7.1	2.7
Queue Length 50th (ft)	18	0	17	53	69	0
Queue Length 95th (ft)	46	29	44	107	132	11
Internal Link Dist (ft)	2323		2623		422	
Turn Bay Length (ft)				140		
Base Capacity (vph)	521	509	219	1491	1289	1107
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.12	0.21	0.38	0.30	0.03
Intersection Summary						

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
3: Redlands BI & Alessandro BI

EACP Conditions AM Peak Hour
HCM 6th AWSC

Intersection

Intersection Delay, s/veh 13.6

Intersection LOS F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔		↔			↔	↔		↔	
Traffic Vol, veh/h	59	84	30	84	216	64	53	449	87	44	305	103
Future Vol, veh/h	59	84	30	84	216	64	53	449	87	44	305	103
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	64	91	33	91	235	70	58	488	95	48	332	112
Number of Lanes	0	1	1	0	1	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	1	2
HCM Control Delay	20.1	68.6	153.7	133.5
HCM LOS	C	F	F	F

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	11%	0%	41%	0%	23%	10%
Vol Thru, %	89%	0%	59%	0%	59%	67%
Vol Right, %	0%	100%	0%	100%	18%	23%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	502	87	143	30	364	452
LT Vol	53	0	59	0	84	44
Through Vol	449	0	84	0	216	305
RT Vol	0	87	0	30	64	103
Lane Flow Rate	546	95	155	33	396	491
Geometry Grp	7	7	7	7	6	6
Degree of Util (X)	1.299	0.205	0.425	0.081	0.956	1.179
Departure Headway (Hd)	9.061	8.276	10.957	10	9.814	9.289
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	404	436	331	360	372	393
Service Time	6.761	5.976	8.657	7.7	7.814	7.289
HCM Lane V/C Ratio	1.351	0.218	0.468	0.092	1.065	1.249
HCM Control Delay	178.1	13.1	21.5	13.6	68.6	133.5
HCM Lane LOS	F	B	C	B	F	F
HCM 95th-tile Q	23.2	0.8	2	0.3	10.5	18.1

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Redlands Alessandro TIA
4: Redlands Bl & Cactus Av

EACP Conditions AM Peak Hour
HCM 6th AWSC

Intersection

Intersection Delay, s/veh 17.6

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕	↕		↕			↕↕	↕		↕	↕
Traffic Vol, veh/h	154	8	81	1	15	23	23	385	0	3	308	129
Future Vol, veh/h	154	8	81	1	15	23	23	385	0	3	308	129
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	175	9	92	1	17	26	26	438	0	3	350	147
Number of Lanes	0	2	1	0	1	0	0	2	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	3	2	3
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	2	3	3	1
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	3	2	1	3
HCM Control Delay	13.8	11.9	17.2	20.6
HCM LOS	B	B	C	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	SBLn1	SBLn2
Vol Left, %	15%	0%	0%	98%	0%	0%	3%	1%	0%
Vol Thru, %	85%	100%	100%	2%	100%	0%	38%	99%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	59%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	151	257	0	157	5	81	39	311	129
LT Vol	23	0	0	154	0	0	1	3	0
Through Vol	128	257	0	3	5	0	15	308	0
RT Vol	0	0	0	0	0	81	23	0	129
Lane Flow Rate	172	292	0	178	6	92	44	353	147
Geometry Grp	8	8	8	7	7	7	8	8	8
Degree of Util (X)	0.345	0.579	0	0.389	0.012	0.17	0.101	0.696	0.259
Departure Headway (Hd)	7.225	7.148	7.148	7.869	7.367	6.651	8.225	7.089	6.372
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	499	505	0	458	486	540	436	509	564
Service Time	4.963	4.885	4.885	5.604	5.101	4.385	5.98	4.824	4.107
HCM Lane V/C Ratio	0.345	0.578	0	0.389	0.012	0.17	0.101	0.694	0.261
HCM Control Delay	13.7	19.3	9.9	15.5	10.2	10.7	11.9	24.5	11.3
HCM Lane LOS	B	C	N	C	B	B	B	C	B
HCM 95th-tile Q	1.5	3.6	0	1.8	0	0.6	0.3	5.4	1

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
2: Redlands Bl & Cottonwood Av

EACP Conditions PM Peak Hour
Queues



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	32	42	34	406	578	63
v/c Ratio	0.16	0.19	0.17	0.26	0.40	0.05
Control Delay	27.2	11.7	27.5	2.3	6.4	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.2	11.7	27.5	2.3	6.4	2.1
Queue Length 50th (ft)	11	0	12	33	53	0
Queue Length 95th (ft)	34	25	35	62	211	13
Internal Link Dist (ft)	2323		2623		422	
Turn Bay Length (ft)				140		
Base Capacity (vph)	525	499	221	1589	1454	1249
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.08	0.15	0.26	0.40	0.05
Intersection Summary						

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
3: Redlands BI & Alessandro BI

EAC Conditions PM Peak Hour
HCM 6th AWSC

Intersection

Intersection Delay, s/veh91.5

Intersection LOS F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔		↔			↔	↔		↔	
Traffic Vol, veh/h	88	185	24	56	96	54	18	290	81	90	434	63
Future Vol, veh/h	88	185	24	56	96	54	18	290	81	90	434	63
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	92	193	25	58	100	56	19	302	84	94	452	66
Number of Lanes	0	1	1	0	1	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	2
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	1	2	2	1
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	2	1	1	2
HCM Control Delay	27.5	23	26.6	191
HCM LOS	D	C	D	F

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	6%	0%	32%	0%	27%	15%
Vol Thru, %	94%	0%	68%	0%	47%	74%
Vol Right, %	0%	100%	0%	100%	26%	11%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	308	81	273	24	206	587
LT Vol	18	0	88	0	56	90
Through Vol	290	0	185	0	96	434
RT Vol	0	81	0	24	54	63
Lane Flow Rate	321	84	284	25	215	611
Geometry Grp	7	7	7	7	6	6
Degree of Util (X)	0.713	0.17	0.669	0.053	0.522	1.341
Departure Headway (Hd)	8.703	7.944	9.316	8.417	9.777	7.896
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	417	455	390	428	371	465
Service Time	6.403	5.644	7.016	6.117	7.777	5.948
HCM Lane V/C Ratio	0.77	0.185	0.728	0.058	0.58	1.314
HCM Control Delay	30.3	12.3	28.9	11.6	23	191
HCM Lane LOS	D	B	D	B	C	F
HCM 95th-tile Q	5.5	0.6	4.7	0.2	2.9	27.6

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
4: Redlands Bl & Cactus Av

EAC Conditions PM Peak Hour
HCM 6th AWSC

Intersection

Intersection Delay, s/veh 14.6

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕	↗		↕			↕↕	↗		↕	↗
Traffic Vol, veh/h	189	14	33	0	7	10	12	203	0	20	336	134
Future Vol, veh/h	189	14	33	0	7	10	12	203	0	20	336	134
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	199	15	35	0	7	11	13	214	0	21	354	141
Number of Lanes	0	2	1	0	1	0	0	2	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	3	2	3
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	2	3	3	1
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	3	2	1	3
HCM Control Delay	13.5	10.2	11.5	16.7
HCM LOS	B	B	B	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	SBLn1	SBLn2
Vol Left, %	15%	0%	0%	98%	0%	0%	0%	6%	0%
Vol Thru, %	85%	100%	100%	2%	100%	0%	41%	94%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	59%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	80	135	0	194	9	33	17	356	134
LT Vol	12	0	0	189	0	0	0	20	0
Through Vol	68	135	0	5	9	0	7	336	0
RT Vol	0	0	0	0	0	33	10	0	134
Lane Flow Rate	84	142	0	204	10	35	18	375	141
Geometry Grp	8	8	8	7	7	7	8	8	8
Degree of Util (X)	0.158	0.266	0	0.4	0.018	0.057	0.035	0.642	0.213
Departure Headway (Hd)	6.795	6.719	6.719	7.064	6.569	5.86	7.136	6.164	5.429
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	527	533	0	510	544	609	499	585	659
Service Time	4.557	4.481	4.481	4.816	4.321	3.612	4.921	3.912	3.177
HCM Lane V/C Ratio	0.159	0.266	0	0.4	0.018	0.057	0.036	0.641	0.214
HCM Control Delay	10.8	11.9	9.5	14.5	9.4	9	10.2	19.4	9.7
HCM Lane LOS	B	B	N	B	A	A	B	C	A
HCM 95th-tile Q	0.6	1.1	0	1.9	0.1	0.2	0.1	4.6	0.8

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET EXPANSION)

Appendix H-2 - Redlands Blvd and Alessandro Blvd Intersection Review



TJW ENGINEERING, INC.
TRAFFIC ENGINEERING &
TRANSPORTATION PLANNING
CONSULTANTS

February 12, 2021

Mr. John Kerenyi, PE
Acting City Traffic Engineer
CITY OF MORENO VALLEY
14177 Frederick Street
Moreno Valley, CA 92553

Subject: Redlands Boulevard and Alessandro Boulevard Intersection Review in the City of Moreno Valley

Dear Mr. Kerenyi,

TJW Engineering, Inc. (TJW) is pleased to submit this focused intersection review associated with the proposed **Redlands Alessandro Commercial Plaza** project located at the southeast corner of the intersection of Redlands Boulevard and Alessandro Boulevard in the City of Moreno Valley. TJW has been working with the City and the developer in the preparation of the traffic impact analysis (*Traffic Impact Analysis: Redlands Alessandro Commercial Plaza*, dated October 15) for the project where the intersection of Redlands Boulevard and Alessandro Boulevard is one of several study intersections. The City is requesting TJW to provide a focused engineering study of the Redlands Boulevard and Alessandro Boulevard intersection knowing that traffic demand and circulation changes will occur in the next few years associated with the City's *World Logistics Center*.



The *World Logistics Center* is a 40.6-million sq.ft. warehousing complex that is planned to be built over the next 15 years and will require major infrastructure projects to accommodate the anticipated traffic demand and circulation changes. The project is located between SR-60 to the north, Redlands Boulevard to the west, Air Forbes Avenue to the south, and Gilman Springs Rd.

Mr. Kerenyi, PE
Redlands/Alessandro Traffic Review
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Springs Road to the east. The project would surround the project intersection at Redlands Boulevard and Alessandro Boulevard and would influence traffic patterns in this part of the City. The *World Logistics Center* would sever the Alessandro Boulevard connection east of Merwin Street, just east of the project intersection. This future closure could eliminate as much as 30% to 40% of traffic at this intersection. Westbound traffic would be limited to local residential traffic only, which would affect movements in the eastbound, northbound, and southbound directions as well. Traffic patterns surrounding this intersection would also change.

The traffic impact analysis (TIA) analyzed the intersection and the project as a localized project on a microanalysis level per the City of Moreno Valley standards. The City is requesting that TJW provide an additional analysis focusing on the specific intersection.

Existing Conditions

The **Redlands Alessandro Commercial Plaza** is located on the southeast corner of the intersection of Redlands Boulevard and Alessandro Boulevard, an existing all-way stop controlled intersection. Both Redlands Boulevard and Alessandro Boulevard are arterials in the City's Circulation Element with a variety of cross-sections depending on the location within the City and proximity to SR-60. The project intersection is located in a relatively under developed area of Moreno Valley with neighborhood gas station, convenient stores and single family homes surrounding the intersection. All approaches are single lane entries, except for the south approach, which has two approach lanes with one lane ending at the intersection. The current lane configuration for the Redlands Boulevard and Alessandro Boulevard intersection is as follows:

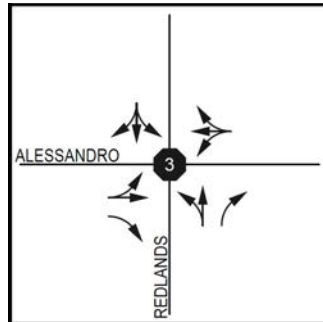
Redlands Boulevard (N/S):

- Northbound: One shared through-left turn lane. One right turn lane.
- Southbound: One shared left turn/through/right turn lane.

Alessandro Boulevard (E/W):

- Eastbound: One shared through-left turn lane. One right turn pocket.
- Westbound: One shared left turn/through/right turn lane.

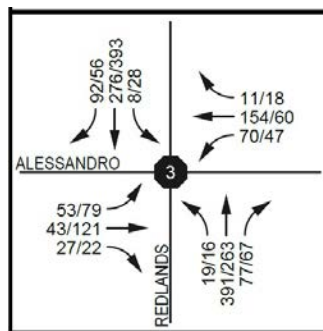
Figure 1 – Existing Lane Configuration



The intersection currently operates as an all-way stop with a single stop sign on each corner. The intersection is unimproved with sidewalk, ADA ramps, and curb and gutter missing. AC Berm is present on most of the corners and sidewalk is present on the northeast corner only where a gas station is located. Utility poles and overhead wires are present on all four corners of the intersection. Streetlights are located on utility poles at the two north approach corners. Speed limits are posted with 50 MPH signs on located on Redlands Boulevard and 40 MPH signs located on Alessandro Boulevard at the intersection. On-street parking is prohibited.

TJW was able to perform a field review of the site and to observe the existing conditions on Friday, December 18 during the AM peak hour. At the time of the observations, the intersection operated efficiently as an all-way stop controlled intersection. Due to the rural nature of the intersection, limited landscaping, clear corner returns, the sight distance at the intersection is clear and would meet sight distance requirements. With single entry lanes, the intersection operates efficiently with driver’s being able to see throughout the intersection. Pedestrians and bicyclists were not observed during the observation period.

Figure 2 – Existing AM/PM Peak Hour Volumes



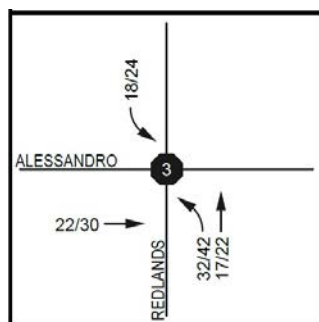
Mr. Kerenyi, PE
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The TIA analyzed the existing all-way stop using *Trafficware's Synchro*, Version 10 analysis software and found the existing conditions to operate at level of service (LOS) D. However, during the observational period, the intersection seemed to operate at a better level of service.

Proposed Project

The proposed **Redlands Alessandro Commercial Plaza** project located at the southeast corner of the intersection will include a 2,000 square foot commercial building, a 2,500 square foot restaurant, and a gas station with 8 vehicle fueling positions. The project is planned to be open and generating trips in 2024. The TIA estimated that the project would generate new trips to the intersection during the AM and PM peak hours as shown **Figure 3**.

Figure 3 – Project AM/PM Peak Hour Volumes



The TIA analyzed the all-way stop condition with existing traffic volumes with the project (EP) and found the EP conditions to operate at LOS E in the AM and LOS D in the PM. Some improvements to the intersection and the installation of a traffic signal was recommended to better serve the intersection.

Engineering Study

To better review the operations of the intersection, TJW has utilized the traffic signal warrant process as outlined in the **California Manual on Uniform Traffic Control Devices** (2014 CA MUTCD, Revision 5). The warrant process helps guide a review of the traffic conditions, pedestrian movements, and physical characteristics of the intersection to determine if a traffic signal would be best suited for the intersection. Satisfying these guidelines doesn't necessarily mean the City is required to install a traffic signal; additional questions should be answered in order to determine if the traffic signal could improve the overall safety and/or operation of the intersection and surrounding roadway network.

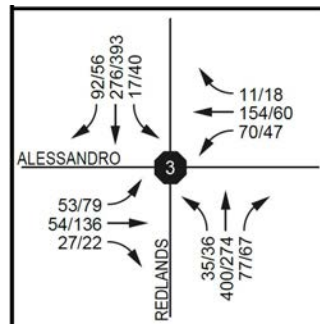
The benchmarks to determine if a traffic signal would be prudent to be installed are given as nine (9) “traffic signal warrants” (Section 4C.01), which are:

CA MUTCD Traffic Signal Warrants	
Warrant 1	Eight-Hour Vehicular Volume
Warrant 2	Four-Hour Vehicular Volume
Warrant 3	Peak Hour
Warrant 4	Pedestrian Volume
Warrant 5	School Crossing
Warrant 6	Coordinated Signal System
Warrant 7	Crash Experience
Warrant 8	Roadway Network
Warrant 9	Intersection Near a Grade Crossing

Warrants 1, 2, 3 – Traffic Volumes

During the TIA process, AM and PM peak hour traffic counts were taken and obtained for the intersection on Tuesday, August 20, 2019. To accommodate the EP traffic volumes, the anticipated project traffic volumes were added to the existing traffic counts and are shown in **Figure 4**.

Figure 4 – Existing + Project AM/PM Peak Hour Volumes



With the available traffic volume data, the TIA and this analysis utilizes the peak hour volume-based warrant (Warrant 3) as the appropriate traffic signal warrant analysis. Warrant 3 is appropriate for this analysis because it provides specialized criteria for intersections with rural characteristics, such as this intersection.

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Warrant 3 evaluates the intersection on the highest hour of traffic, or peak hour. The evaluation determines if the minor street traffic suffers undue delay when entering or crossing the major street during the peak hour. Based on the Warrant 3 criteria, the intersection does satisfy the warrant to justify the installation of a traffic signal. Warrant 3 worksheets and graphs are located below within this letter.

Warrant 3 – Peak Hour - Satisfied

It should be noted that the World Logistics Center would sever the Alessandro Boulevard connection east of Merwin Street, possibly reducing as much as 30% to 40% of traffic at this intersection. If traffic subsides by this much, the traffic volumes would not satisfy Warrant 3.

Warrant 4 – Pedestrian Volume

Warrant 4 is intended for the application where the traffic volume is heavy enough that pedestrians experience excessive delay in trying to cross the street. Due to the rural nature and lack of pedestrian activity, this warrant is not satisfied.

Warrant 4 – Pedestrian Volume - Not Satisfied

Warrant 5 – School Crossing

Warrant 5 is the school crossing application, which focuses on pedestrians, but categorizes these pedestrians as school-aged pedestrians. Since school-aged pedestrians require special attention when crossing unsignalized locations, the requirements are lower to be satisfied. Due to the rural nature, lack of pedestrian activity, and distance from a school, this warrant is not satisfied.

Warrant 5 – School Crossing - Not Satisfied

Warrant 6 – Coordinated Signal System

Warrant 6 evaluates the roadway network of traffic signals. It is at times necessary to install traffic signals along an arterial to maintain proper platooning of vehicles. This warrant does not apply to this intersection, because the proposed intersection is not part of an arterial signal network. This warrant is not satisfied.

Warrant 6 – Coordinated Signal System - Not Satisfied

Warrant 7 – Crash Experience

Warrant 7 analyzes the crash history of the intersection to determine if a traffic signal would mitigate the severity and frequency of certain types of accidents. TJW was able to obtain accident data for the

Mr. Kerenyi, PE
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intersection from the City of Moreno Valley for the time period of January 1, 2015 through August 31, 2020. The accident data showed there were 11 reported incidents at the intersection over the 5.5 year-timeframe with less than five or more reported accidents in a 12-month period. The frequency of accidents correctable by a traffic signal is less than the warrant requirements. Details of the accident history is included below.

Warrant 7 – Crash Experience - Not Satisfied

Warrant 8 – Roadway Network

Warrant 8 is for those intersections where two major streets meet, but do not necessarily meet the minimum requirements of the seven previous warrants. With traffic patterns possibly changing in the near future, it would not be prudent to recommend that this warrant be satisfied.

Warrant 8 – Roadway Network - Not Satisfied

Warrant 9 – Intersection Near a Grade Crossing

Warrant 9 is intended for use at a location where none of the conditions described in the other eight traffic signal warrants are met, but the proximity to the intersection of a grade crossing on an intersection approach controlled by a STOP or YIELD sign is the principal reason to consider installing a traffic control signal. The intersection is not near a grade crossing; therefore, this warrant is not met.

Warrant 9 – Intersection Near a Grade Crossing - Not Satisfied

Findings and Recommendations

This analysis was conducted to provide a more focused review of the effects of the **Redlands Alessandro Commercial Plaza** on the Redlands Boulevard and Alessandro Boulevard intersection. The focused analysis determined that Warrant 3 of the CA MUTCD traffic signal warrant guidelines was warranted for the project's opening year scenario in 2024. However, other warrants, per the CA MUTCD, were not met in this review. The CA MUTCD is clear that satisfying any of these warrants doesn't necessarily mean the City is required to install a traffic signal.

As part of the *World Logistics Center* project, traffic patterns in the eastern portion of the City will significantly change over the next 15 years. The project sever the Alessandro Boulevard connection east of Merwin Street, just east of the project intersection. This future closure could eliminate as much as 30% to 40% of traffic at this intersection removing the need for a signalized intersection. Westbound traffic would be limited to local residential traffic only. Traffic patterns at this intersection, as well as

TJW Engineering, Inc.
 HDI19002 Redlands Alessandro Warrant Review 021221

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traffic patterns around the area, would change greatly affecting the operations at the Redlands Boulevard and Alessandro Boulevard intersection.

Based on this traffic engineering review, TJW Engineering recommends that the existing all-way stop intersection be maintained and not install a traffic signal at this time. As traffic conditions change, and when they can be evaluated for long-term purposes, additional analysis can be done to reevaluate the intersection operations.

Please contact us at (949) 878-3509 if you have any questions regarding this analysis.

Sincerely,



Thomas Wheat, PE, TE
President

Registered Civil Engineer #69467
Registered Traffic Engineer #2565



EP CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: **AM**

Major Street: **Redlands Blvd (NS)**

Minor Street: **Alessandro Blvd (EW)**

Total of Both Approaches (VPH): **897**

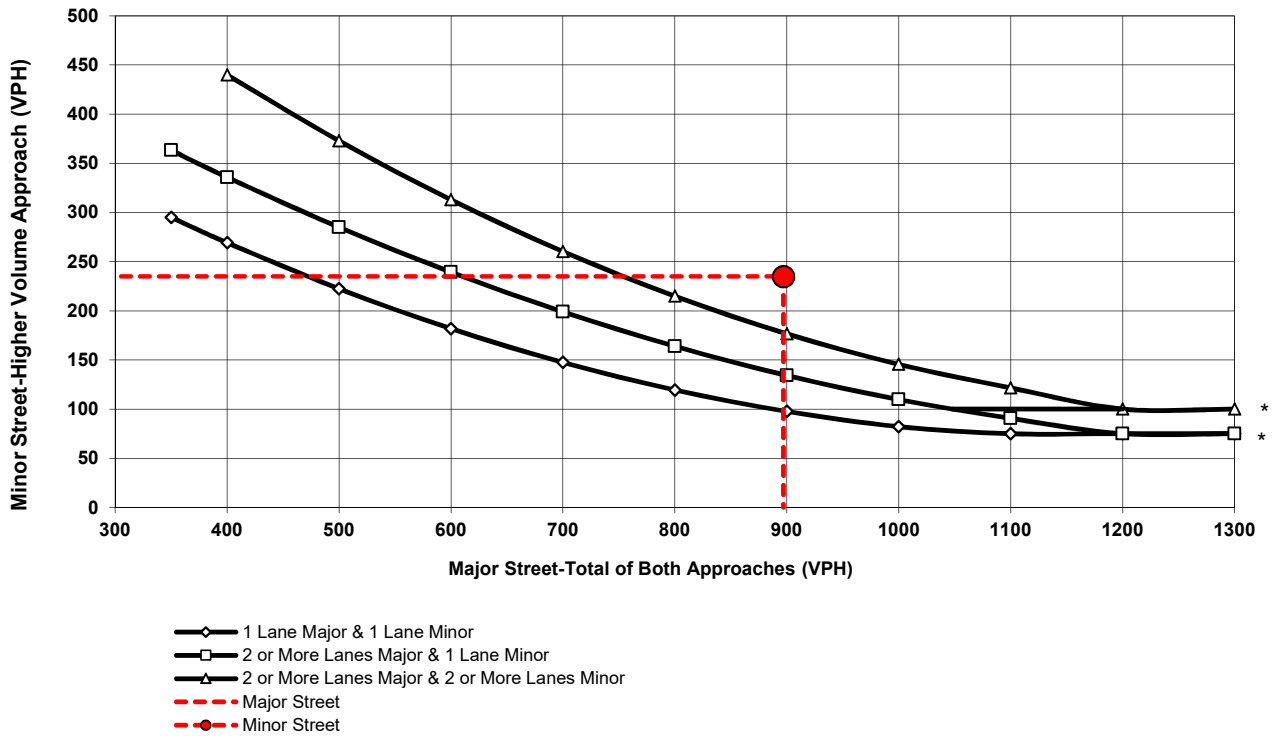
Higher Volume Approach (VPH): **235**

Number of Approach Lanes: **1**

Number of Approach Lanes: **1**

SIGNAL WARRANT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:

100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**EP Conditions
AM Peak Hour Volume Warrant
Alessandro Blvd/Redlands Blvd**

EP CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: PM

Major Street: Redlands Blvd (NS)

Minor Street: Alessandro Blvd (EW)

Total of Both Approaches (VPH): **866**

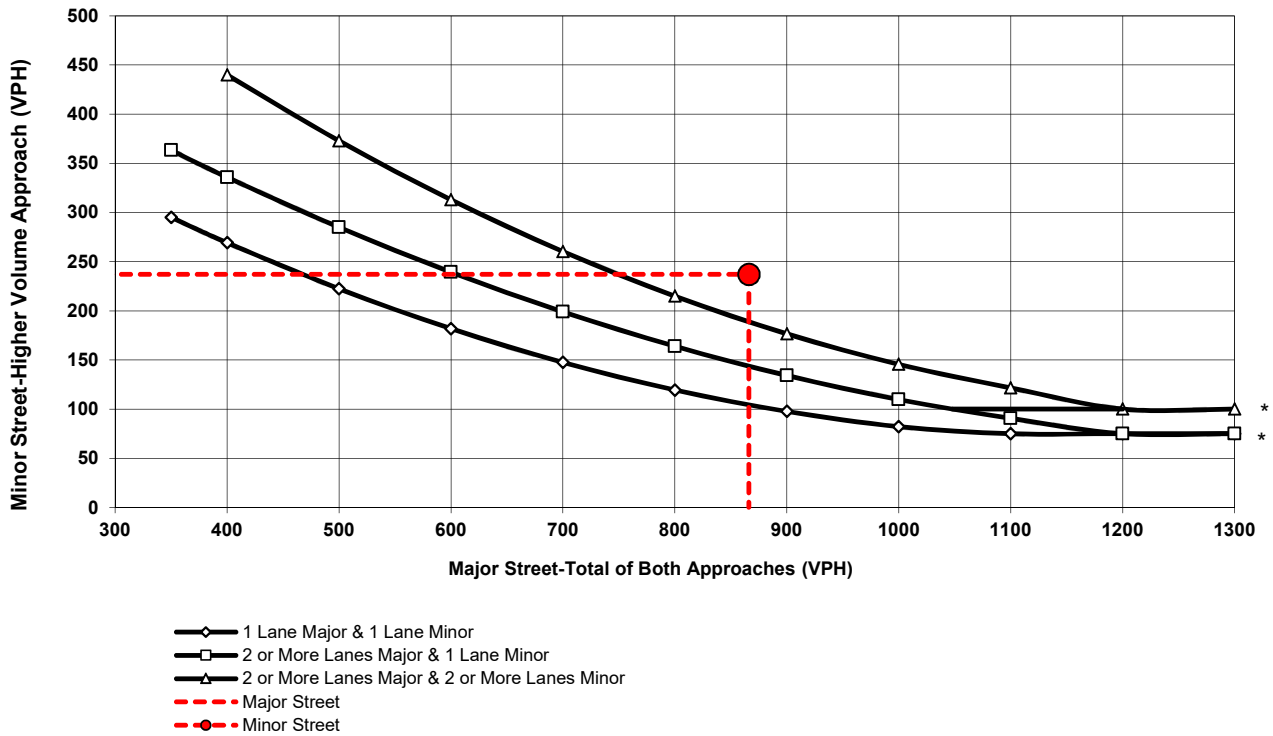
Higher Volume Approach (VPH): **237**

Number of Approach Lanes: **1**

Number of Approach Lanes: **1**

SIGNAL WARRANT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:
100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**EP Conditions
PM Peak Hour Volume Warrant
Alessandro Blvd/Redlands Blvd**

From 1/1/2015 to 8/31/2020

Total Collisions: 11
 Injury Collisions: 6
 Fatal Collisions: 0

Collision Summary Report

12/17/20

REDLANDS BLVD & ALESSANDRO BLVD

Page 1 of 2

MV150150376	1/15/2015	20:00	Thursday	REDLANDS BLVD - ALESSANDRO BLVD	0'	Direction: Not Stated	Dark - Street Ligh	Clear	Pty at Fault:1
	Other		Other Motor Vehicle	Unsafe Starting or Backing	22106	Hit & Run: Misde	Property Damage Only	# Inj: 0	# Killed: 0
Party 1 Driver Veh Type:	South	Stopped In Road		Age: TOYOTA	COROLLA	Passenger Car, Station Wagon, Jeep			
		Sobriety: Impairment Not Kno		Assoc Factor: Not Stated					
Party 2 Driver Veh Type:	North	Stopped In Road	Male	Age: 40	2011 NISSAN	ALTIMA	Passenger Car, Station Wagon, Jeep		
		Sobriety: HNBD		Assoc Factor: None Apparent	Lap/Shoulder Harness Used Cell Phone Not In Use				
MV150700364	3/11/2015	17:58	Wednesday	ALESSANDRO BLVD - REDLANDS BLVD	0'	Direction: Not Stated	Daylight	Clear	Pty at Fault:1
	Broadside		Other Motor Vehicle	Auto R/W Violation	21800A	Hit & Run: Misde	Property Damage Only	# Inj: 0	# Killed: 0
Party 1 Driver Veh Type:	West	Proceeding Straight		Age: 2002 CHEVROLET	ASTRO	Mini Van			
		Sobriety: Impairment Not Kno		Assoc Factor: None Apparent	Not Stated				
Party 2 Driver Veh Type:	South	Proceeding Straight	Female	Age: 35	2006 MAZDA	2.3	Passenger Car, Station Wagon, Jeep		
		Sobriety: HNBD		Assoc Factor: None Apparent	Lap/Shoulder Harness Used Cell Phone Not In Use				
MV151630320	6/12/2015	18:00	Friday	REDLANDS BLVD - ALESSANDRO BLVD	45'	Direction: South	Daylight	Clear	Pty at Fault:1
	Rear-End		Other Motor Vehicle	Unsafe Speed	22350	Hit & Run: No	Complaint of Pain	# Inj: 1	# Killed: 0
Party 1 Driver Veh Type:	North	Slowing / Stopping	Female	Age: 53	2005 KIA	SORENTO	Sport Utility Vehicle		
		Sobriety: HNBD		Assoc Factor: None Apparent	Lap/Shoulder Harness Used Cell Phone Not In Use				
Party 2 Driver Veh Type:	North	Stopped In Road	Male	Age: 45	2015 NISSAN	ALTIMA	Passenger Car, Station Wagon, Jeep		
		Sobriety: HNBD		Assoc Factor: None Apparent	Lap/Shoulder Harness Used Cell Phone Not In Use				
MV153480054	12/14/2015	07:20	Monday	ALESSANDRO BLVD - REDLANDS BLVD	0'	Direction: Not Stated	Daylight	Clear	Pty at Fault:3
	Broadside		Other Motor Vehicle	Auto R/W Violation	21802A	Hit & Run: No	Complaint of Pain	# Inj: 4	# Killed: 0
Party 1 Driver Veh Type:	North	Proceeding Straight	Female	Age: 49	2009 HONDA	PILOT	Sport Utility Vehicle		
		Sobriety: HNBD		Assoc Factor: Inattention	Lap/Shoulder Harness Used Cell Phone Not In Use				
Party 2 Driver Veh Type:	West	Proceeding Straight	Female	Age: 41	2015 NISSAN	PATHFINDER	Mini Van		
		Sobriety: HNBD		Assoc Factor: None Apparent	Lap/Shoulder Harness Used Cell Phone Not In Use				
Party 3 Driver Veh Type:	South	Stopped In Road	Male	Age: 58	1999 CHEVROLET	CORVETTE	Passenger Car, Station Wagon, Jeep		
		Sobriety: HNBD		Assoc Factor: None Apparent	Lap/Shoulder Harness Used Cell Phone Not In Use				
MV162160370	8/3/2016	18:25	Wednesday	ALESSANDRO BLVD - REDLANDS BLVD	8'	Direction: West	Daylight	Clear	Pty at Fault:1
			Other Motor Vehicle	Traffic Signals and Signs	22450A	Hit & Run: Misde	Property Damage Only	# Inj: 0	# Killed: 0
Party 1 Driver Veh Type:	East	Proceeding Straight	Male	Age: NISSAN	MAXIMA	Unknown Hit and Run Vehicle Involvem			
		Sobriety: Impairment Not Kno		Assoc Factor: None Apparent	Not Stated				
Party 2 Driver Veh Type:	South	Proceeding Straight	Female	Age: 58	2014 HONDA	ACC	Passenger Car, Station Wagon, Jeep		
		Sobriety: HNBD		Assoc Factor: None Apparent	Lap/Shoulder Harness Used Cell Phone Not In Use				

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET

REDLANDS BLVD & ALESSANDRO BLVD

MV163590094	12/24/2016	09:15	Saturday	REDLANDS BLVD - ALESSANDRO BLVD			0'	Direction: Not Stated	Daylight	Clear	Pty at Fault:0
	Broadside		Other Motor Vehicle	Traffic Signals and Signs			22450A	Hit & Run: No	Complaint of Pain	# Inj: 1	# Killed: 0
Party 1 Driver Veh Type:	West	Proceeding Straight		Female	Age: 21	2012 FORD	FOCUS	Passenger Car, Station Wagon, Jeep			
		Sobriety: HNBD		Assoc Factor: None Apparent			Lap/Shoulder Harness Used		Cell Phone Not In Use		
Party 2 Driver Veh Type:	South	Proceeding Straight		Male	Age: 35	1996 FORD	EXPLORER	Passenger Car, Station Wagon, Jeep			
		Sobriety: HNBD		Assoc Factor: None Apparent			Lap/Shoulder Harness Used		Cell Phone Not In Use		
MV170900062	3/31/2017	06:34	Friday	REDLANDS BLVD - ALESSANDRO BLVD			0'	Direction: Not Stated	Daylight	Clear	Pty at Fault:1
	Rear-End		Other Motor Vehicle	Unsafe Speed			22350	Hit & Run: No	Other Visible Injury	# Inj: 1	# Killed: 0
Party 1 Driver Veh Type:	North	Slowing / Stopping		Male	Age: 26	2009 FORD	FUSION	Passenger Car, Station Wagon, Jeep			
		Sobriety: HNBD		Assoc Factor: None Apparent			Lap/Shoulder Harness Used		Cell Phone Not In Use		
Party 2 Driver Veh Type:	North	Stopped In Road		Male	Age: 50	2003 FORD	RANGER	Pickups & Panels			
		Sobriety: HNBD		Assoc Factor: None Apparent			Lap/Shoulder Harness Used		Cell Phone Not In Use		
MV180350348	2/4/2018	21:47	Sunday	ALESSANDRO BLVD - REDLANDS BLVD			0'	Direction: Not Stated	Daylight	Clear	Pty at Fault:1
	Broadside		Other Motor Vehicle	Driving Under Influence			23152A	Hit & Run: No	Property Damage Only	# Inj: 0	# Killed: 0
Party 1 Driver Veh Type:	South	Proceeding Straight		Male	Age: 37	2012 TOYOTA	TUNDRA	Pickups & Panels			
		Sobriety: HBD Under Influence		Assoc Factor: None Apparent			Lap/Shoulder Harness Used		Cell Phone Not In Use		
Party 2 Driver Veh Type:	West	Proceeding Straight		Female	Age: 50	1994 CHEVROLET	S-10	Pickups & Panels			
		Sobriety: HNBD		Assoc Factor: None Apparent			Lap/Shoulder Harness Used		Cell Phone Not In Use		
MV182460054	9/3/2018	03:00	Monday	ALESSANDRO BLVD - REDLANDS BLVD			0'	Direction: Not Stated	Dark - No Street	Clear	Pty at Fault:1
	Rear-End		Parked Motor Vehicle	Unsafe Speed			22350	Hit & Run: Misd	Property Damage Only	# Inj: 0	# Killed: 0
Party 1 Driver Veh Type:	East	Proceeding Straight			Age:	1994 TOYOTA	CAMRY	Passenger Car, Station Wagon, Jeep			
		Sobriety: Not Applicable		Assoc Factor: None Apparent			Not Stated	Cell Phone Not In Use			
Party 2 Parked Vehicle Veh Type:		Parked			Age:	1998 TOYOTA	CAMRY	Passenger Car, Station Wagon, Jeep			
		Sobriety: Not Applicable		Assoc Factor: None Apparent			Not Stated	Cell Phone Not In Use			
MV192280072	8/16/2019	07:58	Friday	REDLANDS BLVD - ALESSANDRO BLVD			60'	Direction: North	Daylight	Clear	Pty at Fault:1
	Rear-End		Other Motor Vehicle	Unsafe Speed			22350	Hit & Run: No	Complaint of Pain	# Inj: 1	# Killed: 0
Party 1 Driver Veh Type:	South	Proceeding Straight		Male	Age: 60	2013 HONDA	CIVIC	Passenger Car, Station Wagon, Jeep			
		Sobriety: HNBD		Assoc Factor: None Apparent			Lap/Shoulder Harness Used		Cell Phone Not In Use		
Party 1 Driver Veh Type:	South	Proceeding Straight		Male	Age: 60	2013 HONDA	CIVIC	Passenger Car, Station Wagon, Jeep			
		Sobriety: HNBD		Assoc Factor: None Apparent			Lap/Shoulder Harness Used		Cell Phone Not In Use		
Party 2 Driver Veh Type:	South	Stopped In Road		Female	Age: 47	2012 HONDA	CIVIC	Passenger Car, Station Wagon, Jeep			
		Sobriety: HNBD		Assoc Factor: None Apparent			Lap/Shoulder Harness Used		Cell Phone Not In Use		
Party 2 Driver Veh Type:	South	Stopped In Road		Female	Age: 47	2012 HONDA	CIVIC	Passenger Car, Station Wagon, Jeep			
		Sobriety: HNBD		Assoc Factor: None Apparent			Lap/Shoulder Harness Used		Cell Phone Not In Use		

Settings for Query:

Start Date: 1/1/2015, End Date: 8/31/2020 (on PD Data)

Street: REDLANDS BLVD

Cross Street: ALESSANDRO BLVD

Intersection Related: True

City: Moreno Valley

Sorted By: Date and Time

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET

Appendix H-3 - Vehicle Miles Traveled (VMT) Analysis



TJW ENGINEERING, INC.
 TRAFFIC ENGINEERING &
 TRANSPORTATION PLANNING
 CONSULTANTS

September 1, 2020

Mr. Harry Heady
 HEADY DESIGN INC.
 7365 Carnelian St, Suite 239
 Rancho Cucamonga, CA 91730

SUBJECT: Vehicle Miles Traveled (VMT) Analysis, City of Moreno Valley

Dear Mr. Heady,

TJW Engineering, Inc. (TJW) is pleased to submit this Vehicle Miles Traveled (VMT) analysis for the proposed Redlands Alessandro Commercial Plaza project located at the southeast corner of the intersection of Redlands Boulevard and Alessandro Boulevard. The project consists of a 1,920 square foot commercial building, a 2,580 square foot restaurant, and a gas station with 8 vehicle fueling positions. The purpose of this memorandum is to supplement the Traffic Impact Analysis (TIA) dated March 3rd, 2020 by providing a VMT analysis for the proposed project.

Senate Bill (SB) 743 was adopted in 2013 requiring the Governor's Office of Planning and Research (OPR) to identify new metrics for identifying and mitigating transportation impacts within the California Environmental Quality Act (CEQA). For land use projects, OPR has identified Vehicle Miles Traveled (VMT) as the new metric for transportation analysis under CEQA. The regulatory changes to the CEQA guidelines that implement SB 743 were approved on December 28th, 2018 with an implementation date of July 1st, 2020 as the new metric.

The City of Moreno Valley adopted its revised Traffic Impact Analysis Preparation Guide (June 2020). The document outlines guidelines for CEQA analysis including screening criteria and requirements for VMT assessment of land use projects based on the Western Riverside Council of Governments (WRCOG) Implementation Pathway Study (March 2019).

The City's TIA Guide indicates projects serving the local community less than 50,000 square feet may be presumed to have a less than significant impact. It is anticipated that the proposed project will serve local residents within the vicinity providing enhanced convenience. This additional convenience would reduce the need for residents to travel longer distances. Therefore, trip lengths within the region would be reduced, and vehicle travel would decrease. Thus, the project can be considered local serving retail and will not have a significant VMT impact.

Mr. Heady
Redlands Alessandro VMT Analysis
September 1, 2020
Page 2

This memo provides an overview of VMT analysis for the proposed project for consistency with the new CEQA guidelines. As outlined in the City’s newly adopted TIA Guide, land use projects serving the local community less than 50,000 square feet may be presumed to have less than a significant impact on VMT and does not require additional VMT analysis.

Please contact us at (949) 878-3509 if you have any questions regarding this analysis.

Sincerely,

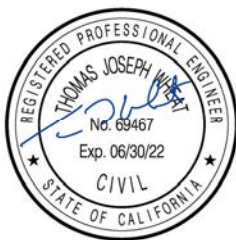


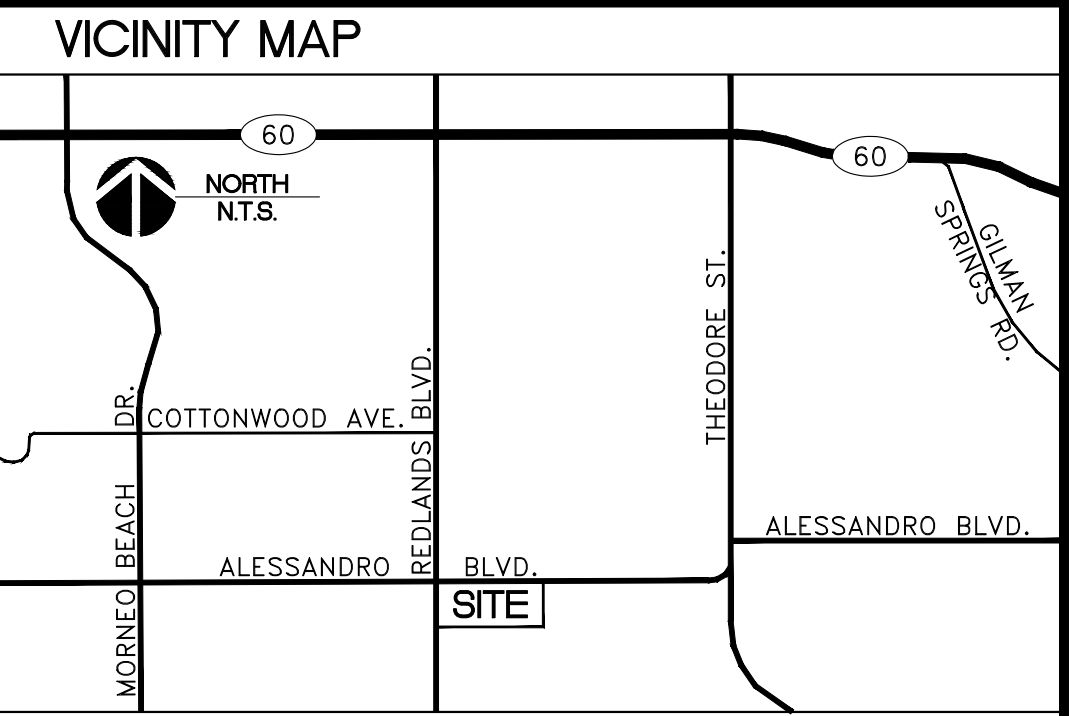
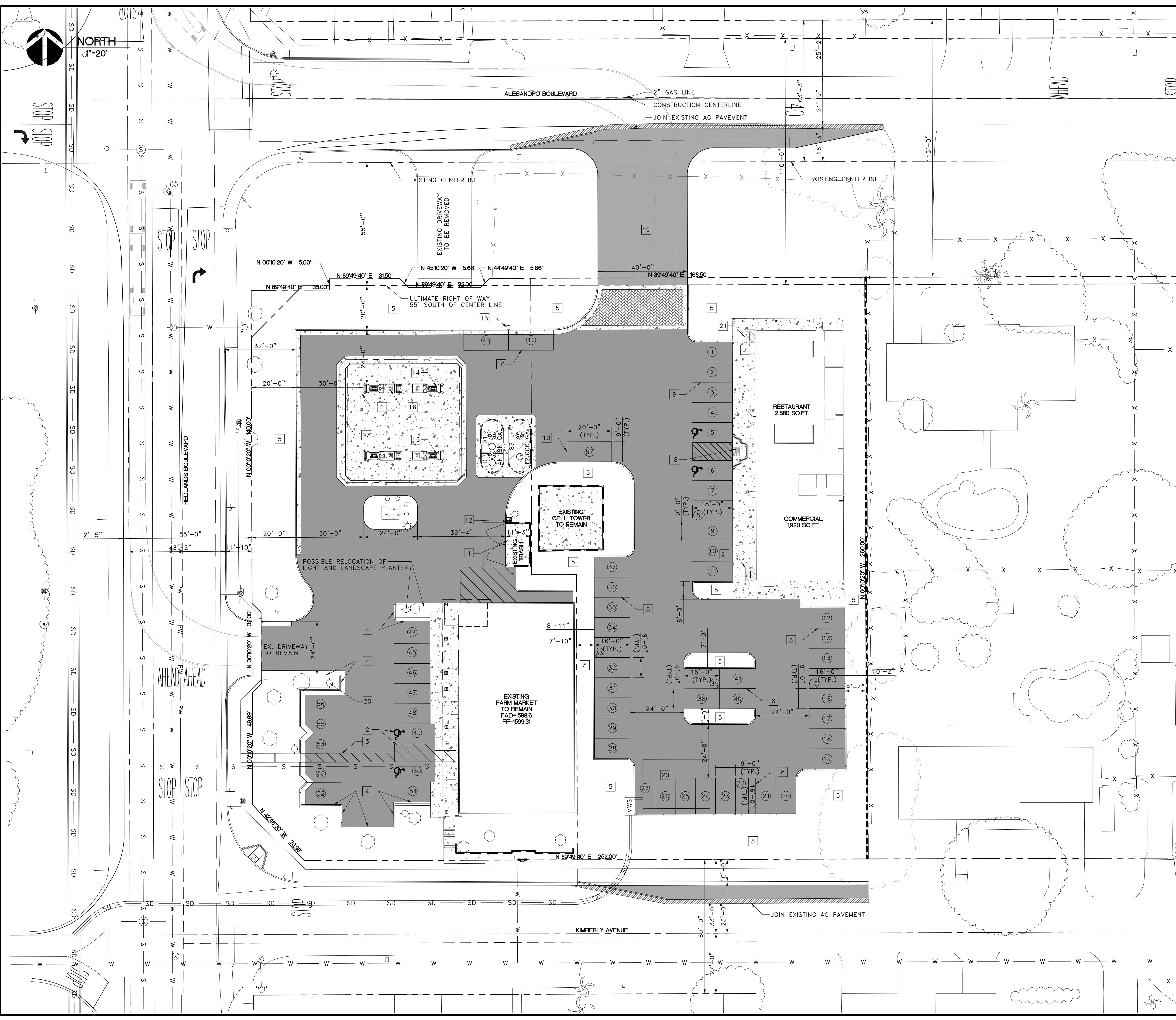
Thomas Wheat, PE, TE
President

Registered Civil Engineer #69467
Registered Traffic Engineer #2565



David Chew, PTP
Transportation Planner





SITE PLAN NOTES

- 1 EXISTING ADA ACCESSIBLE TRASH ENCLOSURE 20'-0" X 11'-0".
- 2 EXISTING ADA ACCESSIBLE PARKING STALL WITH ADA SIGNAGE.
- 3 EXISTING ADA PATH OF TRAVEL.
- 4 EXISTING 6" CURB AND GUTTER.
- 5 PROPOSED LANDSCAPE WITH NEW 6" CONCRETE CURBS.
- 6 PROPOSED 6" # BOLLARD. (TYPICAL OF 9)
- 7 PROPOSED SIDEWALK WITH CURB & GUTTER.
- 8 PROPOSED 9'-0" X 16'-0" PARKING STALLS. (TYP. OF)
- 9 PROPOSED 9'-0" X 18'-0" PARKING STALLS. (TYP. OF)
- 10 PROPOSED 9'-0" X 20'-0" PARKING STALLS. (TYP. OF)
- 11 PROPOSED YARD LIGHTS. (TYP. OF 6)
- 12 PROPOSED VENT RISERS.
- 13 PROPOSED AIR & WATER.
- 14 PROPOSED 3+1 DISPENSER WITH DIESEL.
- 15 PROPOSED 3+1 DISPENSER WITH E-85.
- 16 PROPOSED CANOPY COLUMNS.
- 17 PROPOSED 50'-0" X 50'-0" CANOPY.
- 18 PROPOSED ADA COMPLIANT CONCRETE RAMP.
- 19 PROPOSED 40'-0" WIDE DRIVE WAY.
- 20 PROPOSED UNDERGROUND STORM WATER VAULT (STORM TRAP) VBMP=2,550 CF.
- 21 PROPOSED BICYCLE PARKING WITH 2 BIKE MIN. CAPACITY.

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 Email: Hheady@headydesign.com

FARM MARKET
 14058 REDLANDS BLVD
 MORENO VALLEY, CA 92555

PROPOSED SITE PLAN

Rev. #	Date	Revision Description

Documents prepared by Heady Design Inc. including this document, are to be used only for the specific project and specific use for which they were intended. Any other use, reproduction, or distribution by owner or by any other party, without the expressed written consent of Heady Design Inc. is deemed unauthorized and the user specifically intended, user will hold Heady Design Inc. harmless from all claims and losses.

JOB NO: FMG-001
DRAWN BY: SK
DATE: 01/08/2020
SCALE: 1"=20'

DRAWING: SP1

LEGEND

- (X) PARKING NUMBERS
- PROPERTY LINE
- STREET CENTER LINE
- - - DEMOLITION LINE
- - - UTILITY EASEMENT
- - - BUILDING SETBACK
- - - EXISTING CONTOURS
- - - PROPOSED CONTOURS
- █ ASPHALT CONCRETE PAVING
- █ CONCRETE PAVING
- █ DECORATIVE PAVEMENT

Drawing: 01/08/2020 14058 REDLANDS BLVD - Farm Market Expansion - Initial Study / MMRP (4405 - FARM MARKET EXPANSION)
 User: SK
 Last Modified: Jan 29, 2020 11:45

**CITY OF MORENO VALLEY
 MITIGATION MONITORING AND REPORTING PROGRAM
 Farm Market Plaza
 PEN19-0057 – Master Plot Plan
 PEN19-0058 – Plot Plan new retail building
 PEN19-0059 – Conditional Use Permit for a service station
 PEN19-0060 – CEQA Review**

This Environmental Mitigation Monitoring and Reporting Program has been prepared pursuant to Section 21081.6 of the California Environmental Quality Act, known as CEQA (Public Resources Code Section 21000 et seq.), to provide for the monitoring of mitigation measures as set forth in the Final Initial Study/Mitigated Negative Declaration prepared for the project. This report will be kept on file in the offices of the City of Moreno Valley (City).

Mitigation Measure No./Implementing Action	Responsible for Monitoring	Monitoring Frequency	Timing Verification	Method of Verification	Verified Date/Initials	Sanctions for Non-Compliance
BIOLOGICAL RESOURCES						
BIO-1 If construction occurs between February 1st and August 31st, a pre-construction clearance survey for nesting birds shall be conducted within ten (10) days of the start of any vegetation removal or ground disturbing activities to ensure that no nesting birds will be disturbed during construction. The biologist conducting the clearance survey shall document a negative survey with a brief letter report indicating that no impacts to active avian nests will occur. If an active avian nest is discovered during the pre-construction clearance survey, construction activities should stay outside of a no-disturbance buffer. The size of the no-disturbance buffer shall be determined by the wildlife biologist and will depend on the level of noise and/or surrounding anthropogenic disturbances, line of sight between the nest and the construction activity, type and duration of construction activity, ambient noise, species habituation, and topographical barriers. These factors shall be evaluated on a case-by-case basis when developing buffer distances. Limits of construction to avoid an active nest shall be established in the field with flagging, fencing, or other appropriate barriers; and construction personnel shall be instructed on the sensitivity of nest areas. A biological monitor shall be present to delineate the boundaries of the buffer area and to monitor the active nest to ensure that nesting behavior is not adversely affected by the construction activity. Once the young have fledged and left the nest, or the nest otherwise becomes inactive under natural conditions, construction activities within the buffer area can occur.	Contractor and City Community Development – Planning Division	On-site inspection	Three days prior to start of construction or issuance of City grading permit.	The biologist shall submit a report of survey findings to the City of Moreno Valley prior to issuance of the grading permit. The results of the survey findings shall be retained in the project file.		Issuance of a Stop Work order.

**CITY OF MORENO VALLEY
 MITIGATION MONITORING AND REPORTING PROGRAM
 Farm Market Plaza
 PEN19-0057 – Master Plot Plan
 PEN19-0058 – Plot Plan new retail building
 PEN19-0059 – Conditional Use Permit for a service station
 PEN19-0060 – CEQA Review**

Mitigation Measure No./Implementing Action	Responsible for Monitoring	Monitoring Frequency	Timing Verification	Method of Verification	Verified Date/Initials	Sanctions for Non-Compliance
CULTURAL RESOURCES						
CUL-1: A Secretary of the Interior qualified archaeologist will spot check construction excavations within undisturbed soil to determine the presence or absence of cultural resources. The qualified archaeologist will then be able to recommend increasing or decreasing monitoring activities based on sub-surface findings.	Contractor and City Community Development – Planning Division	On-site inspection	Evidence of retaining a qualified archaeologist shall be submitted to the City at least one week prior to issuance of grading permit.	The archaeologist shall submit a report of findings to the City of Moreno Valley upon completion of earthwork but not later than certificate of occupancy issued by the City. The results of the survey findings shall be retained in the project file.		Issuance of a Stop Work order.
GEOLOGY AND SOILS						
GEO-1: A qualified paleontologist shall be retained to spot check construction excavations that would impact Late Pleistocene to Holocene units. The paleontologist will recommend increasing or decreasing monitoring activities based on the sub-surface findings.	Contractor and City Community Development – Planning Division	On-site inspection	Evidence of retaining a qualified paleontologist shall be submitted to the City at least one week prior to issuance of grading permit.	The paleontologist shall submit a report of findings to the City of Moreno Valley upon completion of earthwork but not later than certificate of occupancy issued by the City. The results of the survey findings shall be retained in the project file.		Issuance of a Stop Work order.

Attachment: Exhibit A to Resolution 2021-15 - MND / Initial Study / MMRP (4405 : FARM MARKET

Appendix A - Air Quality and Greenhouse Gas Analysis

Farm Market Improvement Development Air Quality and Greenhouse Gas Impact Study City of Moreno Valley, CA

Prepared for:

Heady Design, Inc

Harry Heady
7365 Carnelian St., Ste 233
Rancho Cucamonga, CA 91730

Prepared by:

MD Acoustics, LLC

Mike Dickerson, INCE
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Date: 10/9/2019



Noise Study Reports | Vibration Studies | Air Quality | Greenhouse Gas | Health Risk Assessments

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info@mdacoustics.com

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Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

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Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

GLOSSARY OF TERMS

AQMP	Air Quality Management Plan
CAAQS	California Ambient Air Quality Standards
CARB	California Air Resources Board
CEQA	California Environmental Quality Act
CFCs	Chlorofluorocarbons
CH ₄	Methane
CNG	Compressed natural gas
CO	Carbon monoxide
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
DPM	Diesel particulate matter
GHG	Greenhouse gas
HFCs	Hydrofluorocarbons
LST	Localized Significant Thresholds
MTCO ₂ e	Metric tons of carbon dioxide equivalent
MMTCO ₂ e	Million metric tons of carbon dioxide equivalent
NAAQS	National Ambient Air Quality Standards
NO _x	Nitrogen Oxides
NO ₂	Nitrogen dioxide
N ₂ O	Nitrous oxide
O ₃	Ozone
PFCs	Perfluorocarbons
PM	Particle matter
PM10	Particles that are less than 10 micrometers in diameter
PM2.5	Particles that are less than 2.5 micrometers in diameter
PMI	Point of maximum impact
PPM	Parts per million
PPB	Parts per billion
RTIP	Regional Transportation Improvement Plan
RTP	Regional Transportation Plan
SCAB	South Coast Air Basin
SCAQMD	South Coast Air Quality Management District
SF ₆	Sulfur hexafluoride
SIP	State Implementation Plan
SO _x	Sulfur Oxides
SRA	Source/Receptor Area
TAC	Toxic air contaminants
VOC	Volatile organic compounds
WRCC	Western Regional Climate Center

1.0 Introduction

1.1 Purpose of Analysis and Study Objectives

This air quality and greenhouse gas (GHG) analysis was prepared to evaluate whether the estimated criteria pollutants and GHG emissions generated from the project would cause a significant impact to the air resources in the project area. This assessment was conducted within the context of the California Environmental Quality Act (CEQA, California Public Resources Code Sections 21000, et seq.). The assessment is consistent with the methodology and emission factors endorsed by South Coast Air Quality Management District (SCAQMD), California Air Resource Board (CARB), and the United States Environmental Protection Agency (US EPA).

1.2 Project Summary

1.2.1 Site Location

The project site is located at the southeast corner of Redlands Boulevard and Alessandro Boulevard, in the City of Moreno Valley, CA as shown in Exhibit A. The site is currently zoned Village Commercial (VC) and classified as Commercial Land Use according to the City of Moreno Valley General Plan Land Use Map and the proposed use is commercial. The proposed project land use is permitted in the zone and does not require a zone change. Land uses directly surrounding the project include residential to the North, South and East, with commercial use to the west.

1.2.2 Project Description

The proposed project currently has an existing Farm Market store and cell tower and proposes to add the following:

- 2,000 square feet of commercial building;
- 2,500 square feet of restaurant;
- Gas station with 8 vehicle fueling station;

Exhibit B demonstrates the site plan for the project.

Construction activities within the Project area will consist of site preparation, on-site grading, building, paving, and architectural coating. Table 1 summarizes the land use description for the Project Site.

Table 1: Land Use Summary¹

Land Use	Unit Amount	Size Metric
Regional Shopping Center	2.00	TSF
High Turnover (Sit Down Restaurant)	2.50	TSF
Convenience Market with Gas Pumps	8	Pumps
Parking Lot	37	Spaces
Other Non-Asphalt Surfaces	0.48	Acres

¹ Total site is approximately 1.7 acres; however, existing uses to remain cover approximately 0.45 acres. Therefore, the project development activities cover approximately 1.25 acres.

1.2.3 Sensitive Receptors

Sensitive receptors are considered land uses or other types of population groups that are more sensitive to air pollution than others due to their exposure. Sensitive population groups include children, the elderly, the acutely and chronically ill, and those with cardio-respiratory diseases. For CEQA purposes, a sensitive receptor would be a location where a sensitive individual could remain for 24-hours or longer, such as residencies, hospitals, and schools (etc).

The closest existing sensitive receptors (to the site area) are residential land uses located adjacent to the east, approximately 40 feet north (across Alessandro Boulevard), approximately 40 feet south (across Kimberly Avenue), approximately 135 feet southwest (across the Redlands Boulevard and Kimberly Avenue intersection), and approximately 290 feet west (across Redlands Boulevard) of the project site.

1.3 Executive Summary of Findings and Mitigation Measures

The following is a summary of the analysis results:

Construction-Source Emissions

Project construction-source emissions would not exceed applicable regional thresholds of significance established by the SCAQMD. For localized emissions, the project will not exceed applicable Localized Significance Thresholds (LSTs) established by the SCAQMD.

Project construction-source emissions would not conflict with the Basin Air Quality Management Plan (AQMP). As discussed herein, the project will comply with all applicable SCAQMD construction-source emission reduction rules and guidelines. Project construction source emissions would not cause or substantively contribute to violation of the California Ambient Air Quality Standards (CAAQS) or National Ambient Air Quality Standards (NAAQS).

Established requirements addressing construction equipment operations, and construction material use, storage, and disposal requirements act to minimize odor impacts that may result from construction activities. Moreover, construction-source odor emissions would be temporary, short-term, and intermittent in nature and would not result in persistent impacts that would affect substantial numbers of people. Potential construction-source odor impacts are therefore considered less-than-significant.

Operational-Source Emissions

The project operational-sourced emissions would not exceed applicable regional thresholds of significance established by the SCAQMD. Project operational-source emissions would not result in or cause a significant localized air quality impact as discussed in the Operations-Related Local Air Quality Impacts section of this report. Additionally, project-related traffic will not cause or result in CO concentrations exceeding applicable state and/or federal standards (CO "hotspots"). Project operational-source emissions would therefore not adversely affect sensitive receptors within the vicinity of the project.

Project operational-source emissions would not conflict with the Basin Air Quality Management Plan (AQMP). The project's emissions meet SCAQMD regional thresholds and will not result in a significant cumulative impact. The project does not propose any such uses or activities that would result in potentially significant operational-source odor impacts. Potential operational-source odor impacts are therefore considered less-than significant.

The proposed project is estimated to have approximately 0.93MM gallons of through put per year which equates to an approximate 1.58 in a million maximum individual cancer risk (MICR) per SCAQMD's gasoline station health risk assessment (HRA) screening tables for receptors located at 46 meters from fuel source. The risk is below SCAQMD's 10 in a million threshold.

Project-related GHG emissions meet the SCAQMD draft threshold and are also considered to be less than significant. The project also complies with the goals of the CARB Scoping Plan, AB-32, SB-32 and City of Moreno Valley Energy Efficiency and Climate Action Strategy.

Mitigation Measures

A. Construction Measures

Adherence to SCAQMD Rule 403 is required.

No construction mitigation required.

B. Operational Measures to Reduce Emissions

No operational mitigation required.

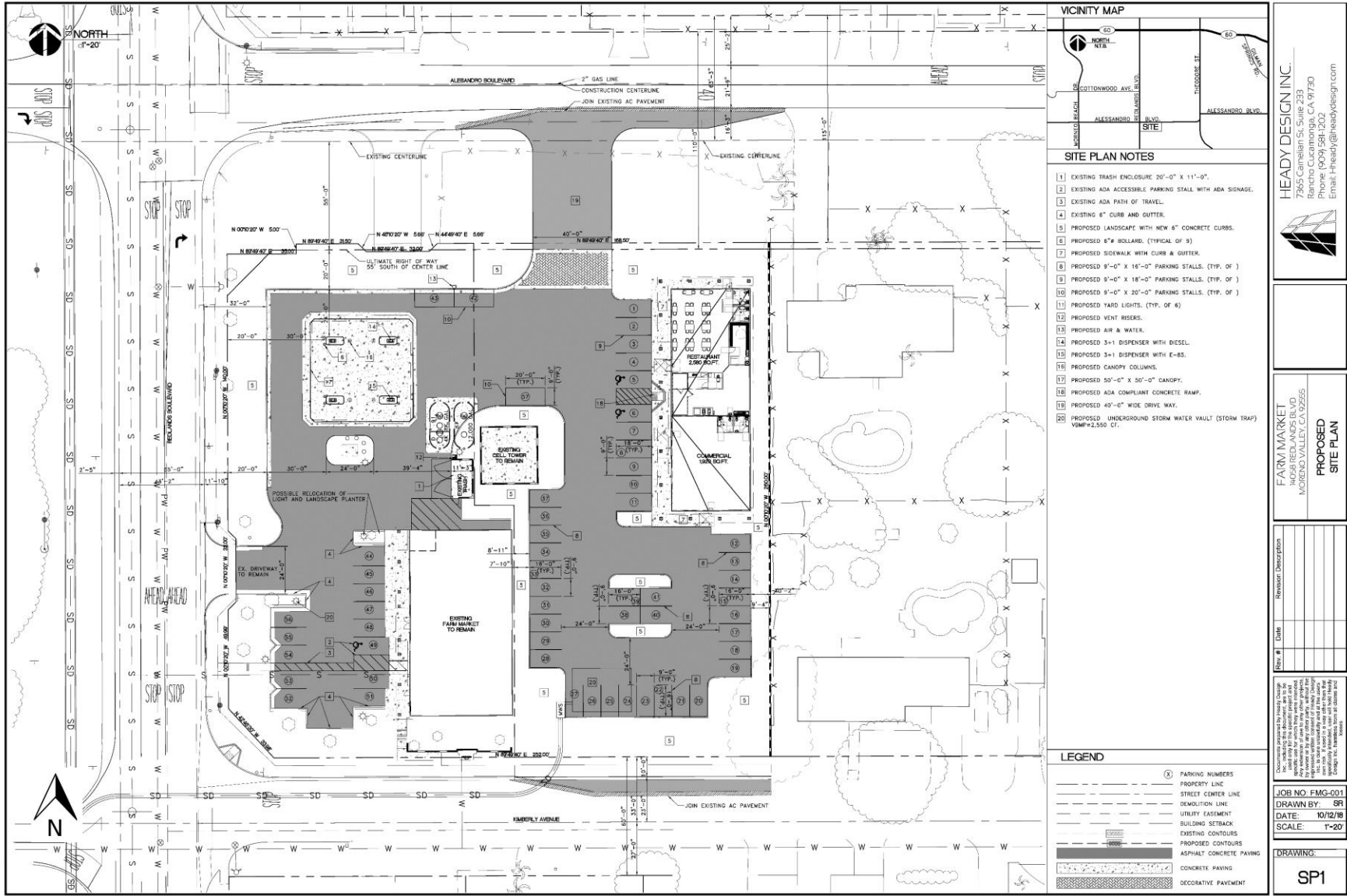
Exhibit /
Location Map



Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Exhibit I
 Site Plan

Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)



2.0 Regulatory Framework and Background

2.1 Air Quality Regulatory Setting

Air pollutants are regulated at the national, state, and air basin level; each agency has a different level of regulatory responsibility. The United States Environmental Protection Agency (EPA) regulates at the national level. The California Air Resources Board (ARB) regulates at the state level. The South Coast Air Quality Management District (SCAQMD) regulates at the air basin level.

2.1.1 National and State

The EPA is responsible for global, international, and interstate air pollution issues and policies. The EPA sets national vehicle and stationary source emission standards, oversees approval of all State Implementation Plans, provides research and guidance for air pollution programs, and sets National Air Quality Standards, also known as federal standards. There are six common air pollutants, called criteria pollutants, which were identified from the provisions of the Clean Air Act of 1970.

- Ozone
- Nitrogen Dioxide
- Lead
- Particulate Matter (PM10 and PM2.5)
- Carbon Monoxide
- Particulate Matter
- Sulfur Dioxide

The federal standards were set to protect public health, including that of sensitive individuals; thus, the standards continue to change as more medical research is available regarding the health effects of the criteria pollutants. Primary federal standards are the levels of air quality necessary, with an adequate margin of safety, to protect the public health.

A State Implementation Plan is a document prepared by each state describing existing air quality conditions and measures that will be followed to attain and maintain federal standards. The State Implementation Plan for the State of California is administered by the ARB, which has overall responsibility for statewide air quality maintenance and air pollution prevention. California's State Implementation Plan incorporates individual federal attainment plans for regional air districts—air district prepares their federal attainment plan, which sent to ARB to be approved and incorporated into the California State Implementation Plan. Federal attainment plans include the technical foundation for understanding air quality (e.g., emission inventories and air quality monitoring), control measures and strategies, and enforcement mechanisms. See <http://www.arb.ca.gov/research/aaqs/aaqs.htm> for additional information on criteria pollutants and air quality standards.

The federal and state ambient air quality standards are summarized in Table 2 and can also be found at <http://www.arb.ca.gov/research/aaqs/aaqs2.pdf>.

Table 2: Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards ¹		National Standards ²		
		Concentrations ³	Method ⁴	Primary ^{3,5}	Secondary ^{3,6}	Method ⁷
Ozone (O ₃)	1-Hour	0.09 ppm	Ultraviolet Photometry	--	Same as Primary Standard	Ultraviolet Photometry
	8-Hour	0.070 ppm		0.070 ppm (147 µg/m ³)		
Respirable Particulate Matter (PM ₁₀) ⁸	24-Hour	50 µg/m ³	Gravimetric or Beta Attenuation	150 µg/m ³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m ³		--		
Fine Particulate Matter (PM _{2.5}) ⁸	24-Hour	--	--	35 µg/m ³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m ³	Gravimetric or Beta Attenuation	12 µg/m ³	15 µg/m ³	
Carbon Monoxide (CO)	1-Hour	20 ppm (23 µg/m ³)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 µg/m ³)	--	Non-Dispersive Infrared Photometry (NDIR)
	8-Hour	9.0 ppm (10 µg/m ³)		9 ppm (10 µg/m ³)	--	
	8-Hour (Lake Tahoe)	6 ppm (7 µg/m ³)		--	--	
Nitrogen Dioxide (NO ₂) ⁹	1-Hour	0.18 ppm (339 µg/m ³)	Gas Phase Chemiluminescence	100 ppb (188 µg/m ³)	--	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (357 µg/m ³)		0.053 ppm (100 µg/m ³)	Same as Primary Standard	
Sulfur Dioxide (SO ₂) ¹⁰	1-Hour	0.25 ppm (655 µg/m ³)	Ultraviolet Fluorescence	75 ppb (196 µg/m ³)	--	Ultraviolet Fluorescence; Spectrophotometry (Pararosaniline Method)
	3-Hour	--		--	0.5 ppm (1300 µg/m ³)	
	24-Hour	0.04 ppm (105 µg/m ³)		0.14 ppm (for certain areas) ¹⁰	--	
	Annual Arithmetic Mean	--		0.130 ppm (for certain areas) ¹⁰	--	
Lead ^{11,12}	30 Day Average	1.5 µg/m ³	Atomic Absorption	--	Same as Primary Standard	High Volume Sampler and Atomic Absorption
	Calendar Qtr	--		1.5 µg/m ³ (for certain areas) ¹²		
	Rolling 3-Month Average	--		0.15 µg/m ³		
Visibility Reducing Particles ¹³	8-Hour	See footnote 13	Beta Attenuation and Transmittance through Filter Tape	No National Standards		
Sulfates	24-Hour	25 µg/m ³	Ion Chromatography			
Hydrogen Sulfide	1-Hour	0.03 ppm (42 µg/m ³)	Ultraviolet Fluorescence			
Vinyl Chloride ¹¹	24-Hour	0.01 ppm (26 µg/m ³)	Gas Chromatography			

Notes:

- California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM₁₀, PM_{2.5}, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
- National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM₁₀, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m³ is equal to or less than one. For PM_{2.5}, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.
- Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
- Any equivalent measurement method which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.
- National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
- National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
- Reference method as described by the U.S. EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the U.S. EPA.

8. On December 14, 2012, the national annual PM2.5 primary standard was lowered from 15 $\mu\text{g}/\text{m}^3$ to 12.0 $\mu\text{g}/\text{m}^3$. The existing national 24-hour PM2.5 standards (primary and secondary) were retained at 35 $\mu\text{g}/\text{m}^3$, as was the annual secondary standard of 15 $\mu\text{g}/\text{m}^3$. The existing 24-hour PM10 standards (primary and secondary) of 150 $\mu\text{g}/\text{m}^3$ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.
9. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.
10. On June 2, 2010, a new 1-hour SO₂ standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO₂ national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.
11. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
12. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 $\mu\text{g}/\text{m}^3$ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.
13. In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

Several pollutants listed in Table 2 are not addressed in this analysis. Analysis of lead is not included in this report because the project is not anticipated to emit lead. Visibility-reducing particles are not explicitly addressed in this analysis because particulate matter is addressed. The project is not expected to generate or be exposed to vinyl chloride because proposed project uses do not utilize the chemical processes that create this pollutant and there are no such uses in the project vicinity. The proposed project is not expected to cause exposure to hydrogen sulfide because it would not generate hydrogen sulfide in any substantial quantity.

2.1.2 South Coast Air Quality Management District

The agency for air pollution control for the South Coast Air Basin (basin) is the South Coast Air Quality Management District (SCAQMD). SCAQMD is responsible for controlling emissions primarily from stationary sources. SCAQMD maintains air quality monitoring stations throughout the basin. SCAQMD, in coordination with the Southern California Association of Governments, is also responsible for developing, updating, and implementing the Air Quality Management Plan (AQMP) for the basin. An AQMP is a plan prepared and implemented by an air pollution district for a county or region designated as nonattainment of the federal and/or California ambient air quality standards. The term nonattainment area is used to refer to an air basin where one or more ambient air quality standards are exceeded.

Every three (3) years the SCAQMD prepares a new AQMP, updating the previous plan and having a 20-year horizon.

On March 23, 2017 CARB approved the 2016 AQMP. The 2016 AQMP is a regional blueprint for achieving the federal air quality standards and healthful air.

The 2016 AQMP includes both stationary and mobile source strategies to ensure that rapidly approaching attainment deadlines are met, that public health is protected to the maximum extent feasible, and that the region is not faced with burdensome sanctions if the Plan is not approved or if the NAAQS are not met on time. As with every AQMP, a comprehensive analysis of emissions, meteorology, atmospheric chemistry, regional growth projections, and the impact of existing control measures is updated with the latest data and methods. The most significant air quality challenge in the Basin is to reduce nitrogen oxide (NO_x) emissions sufficiently to meet the upcoming ozone standard deadlines. The primary goal of this Air Quality Management Plan is to meet clean air standards and protect public health, including ensuring benefits to environmental justice and disadvantaged communities. Now that the plan has been approved by CARB, it has been forwarded to the U.S. Environmental Protection Agency for its review. If approved by EPA, the plan becomes federally enforceable.

The 2012 AQMP built upon the approaches taken in the 2007 AQMP for the attainment of federal PM and ozone standards, and highlights the significant amount of reductions needed and the need to engage in interagency coordinated planning of mobile sources to meet all of the federal criteria pollutant standards. Compared with the 2007 AQMP, the 2012 AQMP utilized revised emissions inventory projections that use 2008 as the base year. On-road emissions are calculated using CARB EMFAC2011 emission factors and the transportation activity data provided by SCAG from their 2012 Regional Transportation Plan (2012 RTP). Off-road emissions were updated using CARB's 2011 In-Use Off-Road Fleet Inventory Model. Since the 2007 AQMP was finalized new area source categories such as liquid propane gas (LPG) transmission losses, storage tank and pipeline cleaning and degassing, and architectural colorants, were created and included in the emissions inventories. The 2012 AQMP also includes analysis of several additional sources of GHG emissions such as landfills and could also assist in reaching the GHG target goals in the AB32 Scoping Plan.

South Coast Air Quality Management District Rules

The AQMP for the basin establishes a program of rules and regulations administered by SCAQMD to obtain attainment of the state and federal standards. Some of the rules and regulations that apply to this Project include, but are not limited to, the following:

SCAQMD Rule 402 prohibits a person from discharging from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.

SCAQMD Rule 403 governs emissions of fugitive dust during construction and operation activities. Compliance with this rule is achieved through application of standard Best Management Practices, such as application of water or chemical stabilizers to disturbed soils, covering haul vehicles, restricting vehicle speeds on unpaved roads to 15 miles per hour, sweeping loose dirt from paved site access

roadways, cessation of construction activity when winds exceed 25 mph, and establishing a permanent ground cover on finished sites.

Rule 403 requires that fugitive dust be controlled with best available control measures so that the presence of such dust does not remain visible in the atmosphere beyond the property line of the emission source. In addition, Rule 403 requires implementation of dust suppression techniques to prevent fugitive dust from creating a nuisance off site. Applicable suppression techniques are indicated below and include but are not limited to the following:

- Apply nontoxic chemical soil stabilizers according to manufacturers' specifications to all inactive construction areas (previously graded areas in active for 10 days or more).
- Water active sites at least three times daily.
- Cover all trucks hauling dirt, sand, soil, or other loose materials, or maintain at least 2 feet of freeboard in accordance with the requirements of California Vehicle Code (CVC) section 23114.
- Pave construction access roads at least 100 feet onto the site from the main road.
- Reduce traffic speeds on all unpaved roads to 15 mph or less.
- Suspension of all grading activities when wind speeds (including instantaneous wind gusts) exceed 25 mph.
- Bumper strips or similar best management practices shall be provided where vehicles enter and exit the construction site onto paved roads or wash off trucks and any equipment leaving the site each trip.
- Replanting disturbed areas as soon as practical.
- During all construction activities, construction contractors shall sweep on-site and off-site streets if silt is carried to adjacent public thoroughfares, to reduce the amount of particulate matter on public streets.

SCAQMD Rule 1113 governs the sale, use, and manufacturing of architectural coating and limits the VOC content in paints and paint solvents. This rule regulates the VOC content of paints available during construction. Therefore, all paints and solvents used during construction and operation of project must comply with Rule 1113.

Idling Diesel Vehicle Trucks – Idling for more than 5 minutes in any one location is prohibited within California borders.

Rule 2702. The SCAQMD adopted Rule 2702 on February 6, 2009, which establishes a voluntary air quality investment program from which SCAQMD can collect funds from parties that desire certified GHG emission reductions, pool those funds, and use them to purchase or fund GHG emission reduction projects within two years, unless extended by the Governing Board. Priority will be given to projects that result in co-benefit emission reductions of GHG emissions and criteria or toxic air pollutants within environmental justice areas. Further, this voluntary program may compete with the cap-and-trade program identified for implementation in CARB's Scoping Plan, or a Federal cap and trade program.

2.2 Greenhouse Gas Regulatory Setting

2.2.1 International

Many countries around the globe have made an effort to reduce GHGs since climate change is a global issue.

Intergovernmental Panel on Climate Change. In 1988, the United Nations and the World Meteorological Organization established the Intergovernmental Panel on Climate Change to assess the scientific, technical and socio-economic information relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts, and options for adaptation and mitigation.

United Nations. The United States participates in the United Nations Framework Convention on Climate Change (UNFCCC) (signed on March 21, 1994). Under the Convention, governments gather and share information on greenhouse gas emissions, national policies, and best practices; launch national strategies for addressing greenhouse gas emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries; and cooperate in preparing for adaptation to the impacts of climate change.

The 2014 UN Climate Change Conference in Lima Peru provided a unique opportunity to engage all countries to assess how developed countries are implementing actions to reduce emissions.

Kyoto Protocol. The Kyoto Protocol is a treaty made under the UNFCCC and was the first international agreement to regulate GHG emissions. It has been estimated that if the commitments outlined in the Kyoto Protocol are met, global GHG emissions could be reduced by an estimated 5 percent from 1990 levels during the first commitment period of 2008 – 2012 (UNFCCC 1997). On December 8, 2012, the Doha Amendment to the Kyoto Protocol was adopted. The amendment includes: New commitments for Annex I Parties to the Kyoto Protocol who agreed to take on commitments in a second commitment period from 2013 – 2020; a revised list of greenhouse gases (GHG) to be reported on by Parties in the second commitment period; and Amendments to several articles of the Kyoto Protocol which specifically referenced issues pertaining to the first commitment period and which needed to be updated for the second commitment period.

2.2.2 National

Greenhouse Gas Endangerment. On December 2, 2009, the EPA announced that GHGs threaten the public health and welfare of the American people. The EPA also states that GHG emissions from on-road vehicles contribute to that threat. The decision was based on *Massachusetts v. EPA* (Supreme Court Case 05-1120) which argued that GHGs are air pollutants covered by the Clean Air Act and that the EPA has authority to regulate those emissions.

Clean Vehicles. Congress first passed the Corporate Average Fuel Economy law in 1975 to increase the fuel economy of cars and light duty trucks. The law has become more stringent over time. On May 19, 2009, President Obama put in motion a new national policy to increase fuel economy for all new cars and trucks sold in the United States. On April 1, 2010, the EPA and the Department of Transportation's

National Highway Safety Administration announced a joint final rule establishing a national program that would reduce greenhouse gas emissions and improve fuel economy for new cars and trucks sold in the United States.

The first phase of the national program would apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. They require these vehicles to meet an estimated combined average emissions level of 250 grams of carbon dioxide per mile, equivalent to 35.5 miles per gallon if the automobile industry were to meet this carbon dioxide level solely through fuel economy improvements. Together, these standards would cut carbon dioxide emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012-2016). The second phase of the national program would involve proposing new fuel economy and greenhouse gas standards for model years 2017 – 2025 by September 1, 2011.

On October 25, 2010, the EPA and the U.S. Department of Transportation proposed the first national standards to reduce greenhouse gas emissions and improve fuel efficiency of heavy-duty trucks and buses. For combination tractors, the agencies are proposing engine and vehicle standards that begin in the 2014 model year and achieve up to a 20 percent reduction in carbon dioxide emissions and fuel consumption by the 2018 model year. For heavy-duty pickup trucks and vans, the agencies are proposing separate gasoline and diesel truck standards, which phase in starting in the 2014 model year and achieve up to a 10 percent reduction for gasoline vehicles and 15 percent reduction for diesel vehicles by 2018 model year (12 and 17 percent respectively if accounting for air conditioning leakage). Lastly, for vocational vehicles, the agencies are proposing engine and vehicle standards starting in the 2014 model year which would achieve up to a 10 percent reduction in fuel consumption and carbon dioxide emissions by 2018 model year.

Mandatory Reporting of Greenhouse Gases. On January 1, 2010, the EPA started requiring large emitters of heat-trapping emissions to begin collecting GHG data under a new reporting system. Under the rule, suppliers of fossil fuels or industrial greenhouse gases, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of greenhouse gas emissions are required to submit annual reports to the EPA.

Climate Adaption Plan. The EPA Plan identifies priority actions the Agency will take to incorporate considerations of climate change into its programs, policies, rules and operations to ensure they are effective under future climatic conditions. The following link provides more information on the EPA Plan: <https://www.epa.gov/arc-x/planning-climate-change-adaptation>

2.2.3 California

California Code of Regulations (CCR) Title 24, Part 6. CCR Title 24, Part 6: California’s Energy Efficiency Standards for Residential and Nonresidential Buildings (Title 24) were first established in 1978 in response to a legislative mandate to reduce California’s energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. Although it was not originally intended to reduce GHG emissions,

electricity production by fossil fuels results in GHG emissions and energy efficient buildings require less electricity. Therefore, increased energy efficiency results in decreased GHG emissions.

The Energy Commission adopted 2008 Standards on April 23, 2008 and Building Standards Commission approved them for publication on September 11, 2008. These updates became effective on August 1, 2009. 2013 and 2016 standards have been approved and became effective July 1, 2014 and January 1, 2016, respectively.

California Code of Regulations (CCR) Title 24, Part 11. All buildings for which an application for a building permit is submitted on or after January 1, 2017 must follow the 2016 standards. All buildings for which an application for a building permit is submitted on or after January 1, 2014 must follow the 2013 standards. Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases greenhouse gas emissions. The following link provides more information on Title 24, Part 11:

<https://www.energy.ca.gov/title24/2016standards/index.html>

California Green Building Standards. On January 12, 2010, the State Building Standards Commission unanimously adopted updates to the California Green Building Standards Code, which went into effect on January 1, 2011. The Code is a comprehensive and uniform regulatory code for all residential, commercial and school buildings. CCR Title 24, Part 11: California Green Building Standards (Title 24) became effective in 2001 in response to continued efforts to reduce GHG emissions associated with energy consumption. CCR Title 24, Part 11 now require that new buildings reduce water consumption, employ building commissioning to increase building system efficiencies, divert construction waste from landfills, and install low pollutant-emitting finish materials. One focus of CCR Title 24, Part 11 is water conservation measures, which reduce GHG emissions by reducing electrical consumption associated with pumping and treating water. CCR Title 24, Part 11 has approximately 52 nonresidential mandatory measures and an additional 130 provisions for optional use. Some key mandatory measures for commercial occupancies include specified parking for clean air vehicles, a 20 percent reduction of potable water use within buildings, a 50 percent construction waste diversion from landfills, use of building finish materials that emit low levels of volatile organic compounds, and commissioning for new, nonresidential buildings over 10,000 square feet.

The California Green Building Standards Code does not prevent a local jurisdiction from adopting a more stringent code as state law provides methods for local enhancements. The Code recognizes that many jurisdictions have developed existing construction and demolition ordinances, and defers to them as the ruling guidance provided they provide a minimum 50-percent diversion requirement. The code also provides exemptions for areas not served by construction and demolition recycling infrastructure. State building code provides the minimum standard that buildings need to meet in order to be certified for occupancy. Enforcement is generally through the local building official. The following link provides more on CalGreen Building Standards:

<http://www.bsc.ca.gov/Home/CALGreen.aspx>

Executive Order S-3-05. California Governor issued Executive Order S-3-05, GHG Emission, in June 2005, which established the following targets:

- By 2010, California shall reduce greenhouse gas emissions to 2000 levels;
- By 2020, California shall reduce greenhouse gas emissions to 1990 levels.
- By 2050, California shall reduce greenhouse gas emissions to 80 percent below 1990 levels.

The executive order directed the secretary of the California Environmental Protection Agency (CalEPA) to coordinate a multi-agency effort to reduce GHG emissions to the target levels. To comply with the Executive Order, the secretary of CalEPA created the California Climate Action Team (CAT), made up of members from various state agencies and commissions. The team released its first report in March 2006. The report proposed to achieve the targets by building on the voluntary actions of businesses, local governments, and communities and through State incentive and regulatory programs.

Executive Order S-01-07. Executive Order S-1-07 was issued in 2007 and proclaims that the transportation sector is the main source of GHG emissions in the State, since it generates more than 40 percent of the State's GHG emissions. It establishes a goal to reduce the carbon intensity of transportation fuels sold in the State by at least ten percent by 2020. This Order also directs CARB to determine whether this Low Carbon Fuel Standard (LCFS) could be adopted as a discrete early-action measure as part of the effort to meet the mandates in AB 32.

On April 23, 2009 CARB approved the proposed regulation to implement the low carbon fuel standard. The low carbon fuel standard is anticipated to reduce GHG emissions by about 16 MMT per year by 2020. The low carbon fuel standard is designed to provide a framework that uses market mechanisms to spur the steady introduction of lower carbon fuels. The framework establishes performance standards that fuel producers and importers must meet each year beginning in 2011. Separate standards are established for gasoline and diesel fuels and the alternative fuels that can replace each. The standards are "back-loaded", with more reductions required in the last five years, than the first five years. This schedule allows for the development of advanced fuels that are lower in carbon than today's fuels and the market penetration of plug-in hybrid electric vehicles, battery electric vehicles, fuel cell vehicles, and flexible fuel vehicles. It is anticipated that compliance with the low carbon fuel standard will be based on a combination of both lower carbon fuels and more efficient vehicles.

Reformulated gasoline mixed with corn-derived ethanol at ten percent by volume and low sulfur diesel fuel represent the baseline fuels. Lower carbon fuels may be ethanol, biodiesel, renewable diesel, or blends of these fuels with gasoline or diesel as appropriate. Compressed natural gas and liquefied natural gas also may be low carbon fuels. Hydrogen and electricity, when used in fuel cells or electric vehicles are also considered as low carbon fuels for the low carbon fuel standard.

SB 97. Senate Bill 97 (SB 97) was adopted August 2007 and acknowledges that climate change is a prominent environmental issue that requires analysis under CEQA. SB 97 directed the Governor's Office of Planning and Research (OPR), which is part of the State Resource Agency, to prepare, develop,

and transmit to CARB guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions, as required by CEQA, by July 1, 2009. The Resources Agency was required to certify and adopt those guidelines by January 1, 2010.

Pursuant to the requirements of SB 97 as stated above, on December 30, 2009 the Natural Resources Agency adopted amendments to the state CEQA guidelines that address GHG emissions. The CEQA Guidelines Amendments changed 14 sections of the CEQA Guidelines and incorporate GHG language throughout the Guidelines. However, no GHG emissions thresholds of significance are provided and no specific mitigation measures are identified. The GHG emission reduction amendments went into effect on March 18, 2010 and are summarized below:

- Climate action plans and other greenhouse gas reduction plans can be used to determine whether a project has significant impacts, based upon its compliance with the plan.
- Local governments are encouraged to quantify the greenhouse gas emissions of proposed projects, noting that they have the freedom to select the models and methodologies that best meet their needs and circumstances. The section also recommends consideration of several qualitative factors that may be used in the determination of significance, such as the extent to which the given project complies with state, regional, or local GHG reduction plans and policies. OPR does not set or dictate specific thresholds of significance. Consistent with existing CEQA Guidelines, OPR encourages local governments to develop and publish their own thresholds of significance for GHG impacts assessment.
- When creating their own thresholds of significance, local governments may consider the thresholds of significance adopted or recommended by other public agencies, or recommended by experts.
- New amendments include guidelines for determining methods to mitigate the effects of greenhouse gas emissions in Appendix F of the CEQA Guidelines.
- OPR is clear to state that “to qualify as mitigation, specific measures from an existing plan must be identified and incorporated into the project; general compliance with a plan, by itself, is not mitigation.”
- OPR’s emphasizes the advantages of analyzing GHG impacts on an institutional, programmatic level. OPR therefore approves tiering of environmental analyses and highlights some benefits of such an approach.
- Environmental impact reports (EIRs) must specifically consider a project's energy use and energy efficiency potential.

AB 32. The California State Legislature enacted AB 32, the California Global Warming Solutions Act of 2006. AB 32 requires that greenhouse gases emitted in California be reduced to 1990 levels by the year 2020. “Greenhouse gases” as defined under AB 32 include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. ARB is the state agency charged with monitoring and regulating sources of greenhouse gases. AB 32 states the following:

Global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California. The potential adverse impacts of global warming include the

exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other human health-related problems.

The ARB Board approved the 1990 greenhouse gas emissions level of 427 million metric tons of carbon dioxide equivalent (MMTCO_{2e}) on December 6, 2007 (California Air Resources Board 2007). Therefore, emissions generated in California in 2020 are required to be equal to or less than 427 MMTCO_{2e}. Emissions in 2020 in a “business as usual” scenario are estimated to be 596 MMTCO_{2e}.

Under AB 32, the ARB published its Final Expanded List of Early Action Measures to Reduce Greenhouse Gas Emissions in California. Discrete early action measures are currently underway or are enforceable by January 1, 2010. The ARB has 44 early action measures that apply to the transportation, commercial, forestry, agriculture, cement, oil and gas, fire suppression, fuels, education, energy efficiency, electricity, and waste sectors. Of these early action measures, nine are considered discrete early action measures, as they are regulatory and enforceable by January 1, 2010. The ARB estimates that the 44 recommendations are expected to result in reductions of at least 42 MMTCO_{2e} by 2020, representing approximately 25 percent of the 2020 target.

The ARB’s Climate Change Scoping Plan (Scoping Plan) contains measures designed to reduce the State’s emissions to 1990 levels by the year 2020 (California Air Resources Board 2008). The Scoping Plan identifies recommended measures for multiple greenhouse gas emission sectors and the associated emission reductions needed to achieve the year 2020 emissions target—each sector has a different emission reduction target. Most of the measures target the transportation and electricity sectors. As stated in the Scoping Plan, the key elements of the strategy for achieving the 2020 greenhouse gas target include:

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards;
- Achieving a statewide renewables energy mix of 33 percent;
- Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system;
- Establishing targets for transportation-related greenhouse gas emissions for regions throughout California and pursuing policies and incentives to achieve those targets;
- Adopting and implementing measures pursuant to existing State laws and policies, including California’s clean car standards, goods movement measures, and the Low Carbon Fuel Standard; and
- Creating targeted fees, including a public goods charge on water use, fees on high global warming potential gases, and a fee to fund the administrative costs of the State’s long-term commitment to AB 32 implementation.

In addition, the Scoping Plan differentiates between “capped” and “uncapped” strategies. “Capped” strategies are subject to the proposed cap-and-trade program. The Scoping Plan states that the inclusion of these emissions within the cap-and-trade program will help ensure that the year 2020 emission targets are met despite some degree of uncertainty in the emission reduction estimates for any individual measure. Implementation of the capped strategies is calculated to achieve a sufficient amount of reductions by 2020 to achieve the emission target contained in AB 32. “Uncapped” strategies that will not be subject to the cap-and-trade emissions caps and requirements are provided as a margin of safety by accounting for additional greenhouse gas emission reductions.⁴

SB 375. Senate Bill 375 (SB 375) was adopted September 2008 and aligns regional transportation planning efforts, regional GHG emission reduction targets, and land use and housing allocation. SB 375 requires Metropolitan Planning Organizations (MPO) to adopt a sustainable communities strategy (SCS) or alternate planning strategy (APS) that will prescribe land use allocation in that MPOs Regional Transportation Plan (RTP). CARB, in consultation with each MPO, will provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. These reduction targets will be updated every eight years but can be updated every four years if advancements in emissions technologies affect the reduction strategies to achieve the targets. CARB is also charged with reviewing each MPO’s sustainable communities strategy or alternate planning strategy for consistency with its assigned targets.

The proposed project is located within the Southern California Association of Governments (SCAG), which has authority to develop the SCS or APS. For the SCAG region, the targets set by CARB are at eight percent below 2005 per capita GHG emissions levels by 2020 and 13 percent below 2005 per capita GHG emissions levels by 2035. On April 4, 2012, SCAG adopted the 2012-2035 Regional Transportation Plan / Sustainable Communities Strategy (RTP/SCS), which meets the CARB emission reduction requirements. The Housing Element Update is required by the State to be completed within 18 months after RTP/SCS adoption or by October 2013.

City and County land use policies, including General Plans, are not required to be consistent with the RTP and associated SCS or APS. However, new provisions of CEQA would incentivize, through streamlining and other provisions, qualified projects that are consistent with an approved SCS or APS and categorized as “transit priority projects.”

Assembly Bill 939 and Senate Bill 1374. Assembly Bill 939 (AB 939) requires that each jurisdiction in California to divert at least 50 percent of its waste away from landfills, whether through waste reduction, recycling or other means. Senate Bill 1374 (SB 1374) requires the California Integrated Waste Management Board to adopt a model ordinance by March 1, 2004 suitable for adoption by any local agency to require 50 to 75 percent diversion of construction and demolition of waste materials from landfills.

Executive Order S-13-08. Executive Order S-13-08 indicates that “climate change in California during the next century is expected to shift precipitation patterns, accelerate sea level rise and increase temperatures, thereby posing a serious threat to California’s economy, to the health and welfare of its

population and to its natural resources.” Pursuant to the requirements in the order, the 2009 California Climate Adaptation Strategy (California Natural Resource Agency 2009) was adopted, which is the “... first statewide, multi-sector, region-specific, and information-based climate change in California, identifying and exploring strategies to adapt to climate change, and specifying a direction for future research.

Executive Order B-30-15. Executive Order B-30-15, establishing a new interim statewide greenhouse gas emission reduction target to reduce greenhouse gas emissions to 40 percent below 1990 levels by 2030, was signed by Governor Brown in April 2015.

Executive Order B-29-15. Executive Order B-29-15, mandates a statewide 25% reduction in potable water usage and was signed into law on April 1, 2015.

Executive Order B-37-16. Executive Order B-37-16, continuing the State’s adopted water reduction, was signed into law on May 9, 2016. The water reduction builds off the mandatory 25% reduction called for in EO B-29-15.

2.2.4 South Coast Air Quality Management District

The Project is within the South Coast Air Basin, which is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). SCAQMD Regulation XXVII currently includes three rules:

- The purpose of Rule 2700 is to define terms and post global warming potentials.
- The purpose of Rule 2701, SoCal Climate Solutions Exchange, is to establish a voluntary program to encourage, quantify, and certify voluntary, high quality certified greenhouse gas emission reductions in the SCAQMD.
- Rule 2702, Greenhouse Gas Reduction Program, was adopted on February 6, 2009. The purpose of this rule is to create a Greenhouse Gas Reduction Program for greenhouse gas emission reductions in the SCAQMD. The SCAQMD will fund projects through contracts in response to requests for proposals or purchase reductions from other parties.

SCAQMD Threshold Development

The SCAQMD has established recommended significance thresholds for greenhouse gases for local lead agency consideration (“SCAQMD draft local agency threshold”). SCAQMD has published a five-tiered draft GHG threshold which includes a 10,000 metric ton of CO₂e per year for stationary/industrial sources and 3,000 metric tons of CO₂e per year significance threshold for residential/commercial projects (South Coast Air Quality Management District 2010c). Tier 3 is anticipated to be the primary tier by which the SCAQMD will determine significance for projects. The Tier 3 screening level for stationary sources is based on an emission capture rate of 90 percent for all new or modified projects. A 90-percent emission capture rate means that 90 percent of total emissions from all new or modified stationary source projects would be subject to CEQA analysis. The 90-percent capture rate GHG significance screening level in Tier 3 for stationary sources was derived using the SCAQMD’s annual Emissions Reporting Program.

The current draft thresholds consist of the following tiered approach:

- Tier 1 consists of evaluating whether or not the project qualifies for any applicable exemption under CEQA.
- Tier 2 consists of determining whether or not the project is consistent with a greenhouse gas reduction plan. If a project is consistent with a qualifying local greenhouse gas reduction plan, it does not have significant greenhouse gas emissions.
- Tier 3 consists of screening values, which the lead agency can choose but must be consistent. A project's construction emissions are averaged over 30 years and are added to a project's operational emissions. If a project's emissions are under one of the following screening thresholds, then the project is less than significant:
 - All land use types: 3,000 MTCO₂e per year
 - Based on land use types: residential is 3,500 MTCO₂e per year; commercial is 1,400 MTCO₂e per year; and mixed use is 3,000 MTCO₂e per year
- Tier 4 has the following options:
 - Option 1: Reduce emissions from business as usual by a certain percentage; this percentage is currently undefined
 - Option 2: Early implementation of applicable AB 32 Scoping Plan measures
 - Option 3: Year 2020 target for service populations (SP), which includes residents and employees: 4.8 MTCO₂e/SP/year for projects and 6.6 MTCO₂e/SP/year for plans;
 - Option 3, 2035 target: 3.0 MTCO₂e/SP/year for projects and 4.1 MTCO₂e/SP/year for plans
- Tier 5 involves mitigation offsets to achieve target significance threshold.

2.2.5 City of Moreno Valley

City of Moreno Valley General Plan

Local jurisdictions, such as the City of Moreno Valley, have the authority and responsibility to reduce air pollution through its police power and decision-making authority. Specifically, the City is responsible for the assessment and mitigation of air emissions resulting from its land use decisions. The City is also responsible for the implementation of transportation control measures as outlined in the 2016 AQMP. Examples of such measures include bus turnouts, energy-efficient streetlights, and synchronized traffic signals. In accordance with CEQA requirements and the CEQA review process, the City assesses the air quality impacts of new development projects, requires mitigation of potentially significant air quality impacts by conditioning discretionary permits, and monitors and enforces implementation of such mitigation.

In accordance with the CEQA requirements, the City does not, however, have the expertise to develop plans, programs, procedures, and methodologies to ensure that air quality within the City and region will meet federal and state standards. Instead, the City relies on the expertise of the SCAQMD and

utilizes the SCAQMD CEQA Handbook as the guidance document for the environmental review of plans and development proposals within its jurisdiction.

The City of Moreno Valley adopted their General Plan in July 2006. The Safety Element in the General Plan, contains the following air quality-related objectives and policies that are applicable to the proposed project:

Objective 6.6

Promote land use patterns that reduce daily automotive trips and reduce trip distance for work, shopping, school, and recreation.

Policies

- 6.6.1 Provide sites for new neighborhood commercial facilities within close proximity to the residential areas they serve.
- 6.6.2 Provide multi-family residential development sites in close proximity to neighborhood commercial centers in order to encourage pedestrian instead of vehicular travel.
- 6.6.3 Locate neighborhood parks in close proximity to the appropriate concentration of residents in order to encourage pedestrian and bicycle travel to local recreation areas.

Objective 6.7

Reduce mobile and stationary source air pollutant emissions.

- 6.7.1 Cooperate with regional efforts to establish and implement regional air quality strategies and tactics.
- 6.7.5 Require grading activities to comply with SCAQMD's Rule 403 regarding the control of fugitive dust.
- 6.7.6 Require building construction to comply with the energy conservation requirements of Title 24 of the California Administrative Code.

City of Moreno Valley Energy Efficiency and Climate Action Strategy

The City of Moreno Valley has adopted the City of Moreno Valley Energy Efficiency and Climate Action Strategy (October 9, 2012), which, along with the City of Moreno Valley Greenhouse Gas Analysis (February 2012) detail potential programs and policies to reduce overall City energy consumption and increase the use of renewable energy. The Greenhouse Gas Analysis develops a target of a 15 percent decrease in GHG emissions over 2007 levels by 2020. The Greenhouse Gas Analysis has been prepared to assist the City in conforming to the GHG emissions reductions as mandated under AB 32. Consistent with the CARB Scoping Plan, the City of Moreno Valley has chosen a reduction target of 15 percent below 2007 GHG emissions levels by 2020.

The reduction policies in the Energy Efficiency and Climate Action Strategy include:

- R2-T1:** Land Use Based Trips and VMT Reduction Policies. Encourage the development of Transit Priority Projects along High Quality Transit Corridors identified in the SCAG Sustainable Communities Plan, to allow a reduction in vehicle miles traveled.
- R2-T3:** Employment-Based Trip Reductions. Require a Transportation Demand Management (TDM) program for new development to reduce automobile travel by encouraging ride-sharing, carpooling, and alternative modes of transportation.
- R2-E1:** New Construction Residential Energy Efficiency Requirements. Require energy efficient design for all new residential buildings to be 10% beyond the current Title 24 standards.
- R2-E2:** New Construction Residential Renewable Energy. Facilitate the use of renewable energy (such as solar [photovoltaic] panels or small wind turbines) for new residential developments. Alternative approach would be the purchase of renewable energy resources off-site.
- R2-E5:** New Construction Commercial Energy Efficiency Requirements. Require energy efficient design for all new commercial buildings to be 10% beyond the current Title 24 standards. (Reach Code).
- R3-E1:** Energy Efficient Development, and Renewable Energy Deployment Facilitation and Streamlining. Updating of codes and zoning requirements and guidelines to further implement green building practices. This could include incentives for energy efficient projects.
- R3-L2:** Heat Island Plan. Develop measures that address “heat islands.” Potential measures include using strategically placed shade trees, using paving materials with a Solar Reflective Index of at least 29, an open grid pavement system, or covered parking.
- R2-W1:** Water Use Reduction Initiative. Consider adopting a per capita water use reduction goal which mandates the reduction of water use of 20 percent per capita with requirements applicable to new development and with cooperative support of the water agencies.
- R3-W1:** Water Efficiency Training and Education. Work with EMWD and local water companies to implement a public information and education program that promotes water conservation.
- R2-S1:** City Diversion Program. This measure sets a target for the City to increase the waste diverted from landfills to 75% by 2020.

With regards to reducing GHG emissions, the City has identified the following achievement goals within the Greenhouse Gas Analysis:

- Provide a list of specific measures that will reduce GHG emissions from community sources and municipal operations.
- Reduce emissions attributable to Moreno Valley to levels at or below 1990 GHG emissions by year 2020 consistent with the target reductions of AB 32.

Therefore, to determine whether the project's GHG emissions are significant, this analysis uses the SCAQMD draft local agency tier 3 threshold screening threshold of 3,000 MTCO_{2e} per year for all land use types.

The project will be subject to the latest requirements of the California Green Building and Title 24 Energy Efficiency Standards (currently 2016) which would reduce project-related greenhouse gas emissions.

3.0 Setting

3.1 Existing Physical Setting

The project site is located in the City of Moreno Valley, which is part of the South Coast Air Basin (SCAB) that includes all of Orange County as well as the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties. The South Coast Air Basin is located on a coastal plain with connecting broad valleys and low hills to the east. Regionally, the South Coast Air Basin is bounded by the Pacific Ocean to the southwest and high mountains to the east forming the inland perimeter.

3.1.1 Local Climate and Meteorology

Dominant airflows provide the driving mechanism for transport and dispersion of air pollution. The mountains surrounding the region form natural horizontal barriers to the dispersion of air contaminants. Air pollution created in the coastal areas and around the Los Angeles area is transported inland until it reaches the mountains where the combination of mountains and inversion layers generally prevent further dispersion. This poor ventilation results in a gradual degradation of air quality from the coastal areas to inland areas. Air stagnation may occur during the early evening and early morning periods of transition between day and nighttime flows. The region also experiences periods of hot, dry winds from the desert, known as Santa Ana winds. If the Santa Ana winds are strong, they can surpass the sea breeze, which blows from the ocean to the land, and carry the suspended dust and pollutants out to the ocean. If the winds are weak, they are opposed by the sea breeze and cause stagnation, resulting in high pollution events.

The annual average temperature varies little throughout much of the basin, ranging from the low to middle 60s, measured in degrees Fahrenheit (°F). With more pronounced oceanic influence, coastal areas show less variability in annual minimum and maximum temperatures than inland areas where the project site is located. The majority of the annual rainfall in the basin occurs between November and April. Summer rainfall is minimal and is generally limited to scattered thunderstorms in the coastal regions and slightly heavier showers in the eastern portion of the basin along the coastal side of the mountains. Year-to-year patterns in rainfall are unpredictable because of fluctuations in the weather.

Temperature inversions limit the vertical depth through which pollution can be mixed. Among the most common temperature inversions in the basin are radiation inversions, which form on clear winter nights when cold air off mountains sink to the valley floor while the air aloft over the valley remains warm. These inversions, in conjunction with calm winds, trap pollutants near the source. Other types of temperature inversions that affect the basin include marine, subsidence, and high-pressure inversions.

Summers are often periods of hazy visibility and occasionally unhealthy air. Strong temperature inversions may occur that limit the vertical depth through which air pollution can be dispersed. Air pollutants concentrate because they cannot rise through the inversion layer and disperse. These inversions are more common and persistent during the summer months. Over time, sunlight produces photochemical reactions within this inversion layer that creates ozone, a particularly harmful air

pollutant. Occasionally, strong thermal convections occur which allows the air pollutants to rise high enough to pass over the mountains and ultimately dilute the smog cloudtrap pollutants such as automobile exhaust near their source. While these inversions may lead to air pollution “hot spots” in heavily developed coastal areas of the basin, there is not enough traffic in inland valleys to cause any winter air pollution problems. Despite light wind conditions, especially at night and in the early morning, winter is generally a period of good air quality in the project vicinity.

In the winter, light nocturnal winds result mainly from the drainage of cool air off of the mountains toward the valley floor while the air aloft over the valley remains warm. This forms a type of inversion known as a radiation inversion. Such winds are characterized by stagnation and poor local mixing and trap pollutants such as automobile exhaust near their source. While these inversions may lead to air pollution “hot spots” in heavily developed coastal areas of the basin, there is not enough traffic to cause any winter air pollution problems. Despite light wind conditions, especially at night and in the early morning, winter is generally a period of good air quality in the project vicinity.

The temperature and precipitation levels for the City of Riverside, closest monitoring station to the project site, are in Table 3. Table 3 shows that August is typically the warmest month and December is typically the coolest month. Rainfall in the project area varies considerably in both time and space. Almost all the annual rainfall comes from the fringes of mid-latitude storms from late November to early April, with summers being almost completely dry.

Table 3: Meteorological Summary

Month	Temperature (°F)		Average Precipitation (inches)
	Average High	Average Low	
January	67.2	42.6	2.03
February	68.0	44.2	2.32
March	71.1	46.2	1.78
April	75.7	49.3	0.68
May	80.6	53.9	0.23
June	86.9	57.4	0.08
July	93.5	61.6	0.04
August	94.6	62.3	0.09
September	90.7	59.3	0.15
October	82.6	53.4	0.42
November	71.4	45.1	0.79
December	67.4	42.1	1.43
Annual Average	79.4	51.6	10.0
Notes:			
¹ Source: https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca7473			

3.1.2 Local Air Quality

The SCAQMD has divided the South Coast Air Basin into 38 air-monitoring areas with a designated ambient air monitoring station representative of each area. The project site is located in the City of Moreno Valley in the Perris Valley (Area 24). The nearest air monitoring station to the project site is

the Perris Station. The Perris Station is located approximately 9.78 miles southwest of the project site, however this location does not provide all ambient weather data. Therefore, additional data was pulled from the Riverside-Rubidoux Station (Riverside Station) for nitrogen dioxide and ultra-fine particulates (PM_{2.5}) SCAQMD and the historical data for the Perris Valley (Area 24) for both sulfur dioxide and carbon monoxide to provide the existing levels. The Riverside Station is located approximately 15.92 miles northwest of the project site. Table 4 presents the monitored pollutant levels within the vicinity. However, it should be noted that due to the air monitoring station distance from the project site, recorded air pollution levels at the air monitoring station reflect with varying degrees of accuracy, local air quality conditions at the project site.

Table 4: Local Area Air Quality Levels from the Perris/Riverside Monitoring Stations

Pollutant (Standard) ²	Year		
	2016	2017	2018
Ozone:			
Maximum 1-Hour Concentration (ppm)	0.131	0.120	0.117
Days > CAAQS (0.09 ppm)	23	33	31
Maximum 8-Hour Concentration (ppm)	0.098	0.105	0.103
Days > NAAQS (0.07 ppm)	55	80	67
Days > CAAQS (0.070 ppm)	30	52	47
Carbon Monoxide:			
Maximum 1-Hour Concentration (ppm)	-	-	-
Days > NAAQS (20 ppm)	-	-	-
Maximum 8-Hour Concentration (ppm)	-	-	-
Days > NAAQS (9 ppm)	-	-	-
Nitrogen Dioxide:			
Maximum 1-Hour Concentration (ppm)	0.073	0.063	0.055
Days > NAAQS (0.25 ppm)	0	0	0
Sulfur Dioxide:			
Maximum 1-Hour Concentration (ppm)	-	-	-
Days > CAAQS (0.25 ppm)	-	-	-
Inhalable Particulates (PM₁₀):			
Maximum 24-Hour Concentration (ug/m ³)	76.0	75.4	64.4
Days > NAAQS (150 ug/m ³)	0	0	0
Days > CAAQS (50 ug/m ³)	5	11	2
Annual Average (ug/m ³)	32.2	32.6	30.2
Annual > NAAQS (50 ug/m ³)	No	No	No
Annual > CAAQS (20 ug/m ³)	Yes	Yes	Yes
Ultra-Fine Particulates (PM_{2.5}):			
Maximum 24-Hour Concentration (ug/m ³)	60.8	50.3	68.3
Days > NAAQS (35 ug/m ³)	5	7	3
Annual Average (ug/m ³)	12.5	12.2	12.5
Annual > NAAQS (15 ug/m ³)	No	No	No
Annual > CAAQS (12 ug/m ³)	Yes	Yes	Yes
¹ Source: obtained from https://www.aqmd.gov/home/air-quality/air-quality-data-studies/historical-data-by-year and/or https://www.arb.ca.gov/adam/topfour/topfour1.php ² CAAQS = California Ambient Air Quality Standard; NAAQS = National Ambient Air Quality Standard; ppm = parts per million ³ No data available.			

The monitoring data presented in Table 4 shows that ozone and particulate matter (PM10 and PM2.5) are the air pollutants of primary concern in the project area, which are detailed below.

Ozone

During the 2016 to 2018 monitoring period, the State 1-hour concentration standard for ozone has been exceeded between 23 and 33 days each year at the Perris Station. The State 8-hour ozone standard has been exceeded between 30 and 52 days each year over the past three years at the Perris Station. The Federal 8-hour ozone standard has been exceeded between 55 and 80 days each year over the past three years at the Perris Station.

Ozone is a secondary pollutant as it is not directly emitted. Ozone is the result of chemical reactions between other pollutants, most importantly hydrocarbons and NO₂, which occur only in the presence of bright sunlight. Pollutants emitted from upwind cities react during transport downwind to produce the oxidant concentrations experienced in the area. Many areas of the SCAQMD contribute to the ozone levels experienced at the monitoring station, with the more significant areas being those directly upwind.

Carbon Monoxide

CO is another important pollutant that is due mainly to motor vehicles. The Perris Valley Area did not record an exceedance of the state or federal 1-hour or 8-hour CO standards for the last three years.

Nitrogen Dioxide

The Riverside Station did not record an exceedance of the State or Federal NO₂ standards for the last three years.

Sulfur Dioxide

The Perris Valley Area did not record an exceedance of the State SO₂ standards for the last three years.

Particulate Matter

During the 2016 to 2018 monitoring period, the State 24-hour concentration standard for PM10 was exceeded between two and 11 days each year at the Perris Station. Over the same time period the Federal 24-hour and annual standards for PM10 have not been exceeded at the Perris Station.

During the 2016 to 2018 monitoring period, the Federal 24-hour standard for PM2.5 was exceeded between three and seven days each year at the Riverside Station.

According to the EPA, some people are much more sensitive than others to breathing fine particles (PM10 and PM2.5). People with influenza, chronic respiratory and cardiovascular diseases, and the elderly may suffer worsening illness and premature death due to breathing these fine particles. People with bronchitis can expect aggravated symptoms from breathing in fine particles. Children may experience decline in lung function due to breathing in PM10 and PM2.5. Other groups considered sensitive are smokers and people who cannot breathe well through their noses. Exercising athletes are also considered sensitive, because many breathe through their mouths during exercise.

3.1.3 Attainment Status

The EPA and the ARB designate air basins where ambient air quality standards are exceeded as “nonattainment” areas. If standards are met, the area is designated as an “attainment” area. If there is inadequate or inconclusive data to make a definitive attainment designation, they are considered “unclassified.” National nonattainment areas are further designated as marginal, moderate, serious, severe, or extreme as a function of deviation from standards. Each standard has a different definition, or ‘form’ of what constitutes attainment, based on specific air quality statistics. For example, the Federal 8-hour CO standard is not to be exceeded more than once per year; therefore, an area is in attainment of the CO standard if no more than one 8-hour ambient air monitoring values exceeds the threshold per year. In contrast, the federal annual PM_{2.5} standard is met if the three-year average of the annual average PM_{2.5} concentration is less than or equal to the standard. Table 5 lists the attainment status for the criteria pollutants in the basin.

Table 5: South Coast Air Basin Attainment Status

Pollutant	Averaging Time	National Standards ¹	Attainment Date ²	California Standards ³
1979 1-Hour Ozone ⁴	1-Hour (0.12 ppm)	Nonattainment (Extreme)	11/15/2010 (Not attained ⁴)	Extreme Nonattainment
1997 8-Hour Ozone ⁵	8-Hour (0.08 ppm)	Nonattainment (Extreme)	6/15/2024	Nonattainment
2008 8-Hour Ozone	8-Hour (0.075 ppm)	Nonattainment (Extreme)	12/31/2032	
2015 8-Hour Ozone	8-Hour (0.070 ppm)	Designations Pending	~2037	
CO	1-Hour (35 ppm) 8-Hour (9 ppm)	Attainment (Maintenance)	6/11/2007 (Attained)	Maintenance
NO ₂ ⁶	1-Hour (100 ppb) Annual (0.053 ppm)	Attainment (Maintenance)	9/22/1998 (Attained)	Attainment
SO ₂ ⁷	1-Hour (75 ppb)	Designations Pending	Pending	Attainment
	24-Hour (0.14 ppm) Annual (0.03 ppm)	Unclassifiable/ Attainment	3/19/1979 (Attained)	
PM10	24-Hour (150 µg/m ³)	Nonattainment (Serious) ⁸	12/31/2006 (Redesignation request submitted) ⁸	Nonattainment
PM2.5	24-Hour (35 µg/m ³)	Nonattainment	12/31/2006 (Redesignation request submitted) ⁸	Unclassified
Lead	3-Months Rolling (0.15 µg/m ³)	Nonattainment (Partial) ⁹	12/31/2015	Nonattainment (Partial) ⁹

Notes:
¹ Obtained from Draft 2012 AQMP, SCAQMD, 2012. EPA often only declares Nonattainment areas; everywhere else is listed as Unclassified/Attainment or Unclassifiable.
² A design value below the NAAQS for data through the full year or smog season prior to the attainment date is typically required for attainment demonstration.
³ Obtained from <http://www.arb.ca.gov/design/adm/adm.htm>.
⁴ 1-hour O₃ standard (0.13 ppm) was revoked, effective June 15, 2005; however, the Basin has not attained this standard based on 2008-2010 data has some continuing obligations under the former standard.
⁵ 1997 8-hour O₃ standard (0.08 ppm) was reduced (0.075 ppm), effective May 27, 2008; the 1997 O₃ standard and most related implementation rules remain in place until the 1997 standard is revoked by U.S. EPA.
⁶ New NO₂ 1-hour standard, effective August 2, 2010; attainment designations June, 2013; annual NO₂ standard retained.
⁷ The 1971 annual and 24-hour SO₂ standards were revoked, effective August 23, 2010; however, these 1971 standards will remain in effect until one year after U.S. EPA promulgates area designations for the 2010 SO₂ 1-hour standard. Area designations expected in 2012, with SSAB designated Unclassifiable/Attainment.
⁸ Annual PM10 standard was revoked, effective December 18, 2006; redesignation request to Attainment of the 24-hour PM10 standard is pending with U.S. EPA
⁹ Partial Nonattainment designation - Los Angeles County portion of Basin only.

3.2 Greenhouse Gases

Constituent gases of the Earth’s atmosphere, called atmospheric greenhouse gases (GHG), play a critical role in the Earth’s radiation amount by trapping infrared radiation emitted from the Earth’s

surface, which otherwise would have escaped to space. Prominent greenhouse gases contributing to this process include carbon dioxide (CO₂), methane (CH₄), ozone, water vapor, nitrous oxide (N₂O), and chlorofluorocarbons (CFCs). This phenomenon, known as the Greenhouse Effect, is responsible for maintaining a habitable climate. Anthropogenic (caused or produced by humans) emissions of these greenhouse gases in excess of natural ambient concentrations are responsible for the enhancement of the Greenhouse Effect and have led to a trend of unnatural warming of the Earth's natural climate, known as global warming or climate change. Emissions of gases that induce global warming are attributable to human activities associated with industrial/manufacturing, agriculture, utilities, transportation, and residential land uses. Transportation is responsible for 41 percent of the State's greenhouse gas emissions, followed by electricity generation. Emissions of CO₂ and nitrous oxide (NO₂) are byproducts of fossil fuel combustion. Methane, a potent greenhouse gas, results from off-gassing associated with agricultural practices and landfills. Sinks of CO₂, where CO₂ is stored outside of the atmosphere, include uptake by vegetation and dissolution into the ocean. Table 6 provides a description of each of the greenhouse gases and their global warming potential.

Additional information is available: <https://www.arb.ca.gov/cc/inventory/data/data.htm>

<Table 6 on next page>

Table 6: Description of Greenhouse Gases

Greenhouse Gas	Description and Physical Properties	Sources
Nitrous oxide	Nitrous oxide (N ₂ O), also known as laughing gas is a colorless gas. It has a lifetime of 114 years. Its global warming potential is 298.	Microbial processes in soil and water, fuel combustion, and industrial processes. In addition to agricultural sources, some industrial processes (nylon production, nitric acid production) also emit N ₂ O.
Methane	Methane (CH ₄) is a flammable gas and is the main component of natural gas. It has a lifetime of 12 years. Its global warming potential is 25.	A natural source of CH ₄ is from the decay of organic matter. Methane is extracted from geological deposits (natural gas fields). Other sources are from the decay of organic material in landfills, fermentation of manure, and cattle farming.
Carbon dioxide	Carbon dioxide (CO ₂) is an odorless, colorless, natural greenhouse gas. Carbon dioxide's global warming potential is 1. The concentration in 2005 was 379 parts per million (ppm), which is an increase of about 1.4 ppm per year since 1960.	Natural sources include decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; evaporation from oceans; and volcanic outgassing. Anthropogenic sources are from burning coal, oil, natural gas, and wood.
Chlorofluorocarbons	CFCs are nontoxic, nonflammable, insoluble, and chemically unreactive in the troposphere (the level of air at the earth's surface). They are gases formed synthetically by replacing all hydrogen atoms in methane or methane with chlorine and/or fluorine atoms. Global warming potentials range from 3,800 to 8,100.	Chlorofluorocarbons were synthesized in 1928 for use as refrigerants, aerosol propellants, and cleaning solvents. They destroy stratospheric ozone, therefore their production was stopped as required by the Montreal Protocol.
Hydrofluorocarbons	Hydrofluorocarbons (HFCs) are a group of greenhouse gases containing carbon, chlorine, and at least one hydrogen atom. Global warming potentials range from 140 to 11,700.	Hydrofluorocarbons are synthetic manmade chemicals used as a substitute for chlorofluorocarbons in applications such as automobile air conditioners and refrigerants.
Perfluorocarbons	Perfluorocarbons (PFCs) have stable molecular structures and only break down by ultraviolet rays about 60 kilometers above the Earth's surface. They have a lifetime 10,000 to 50,000 years. They have a global warming potential range of 6,200 to 9,500.	Two main sources of perfluorocarbons are primary aluminum production and semiconductor manufacturing.
Sulfur hexafluoride	Sulfur hexafluoride (SF ₆) is an inorganic, odorless, colorless, and nontoxic, nonflammable gas. It has a lifetime of 3,200 years. It has a high global warming potential, 23,900.	This gas is manmade and used for insulation in electric power transmission equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.
Notes:		
1. Sources: Intergovernmental Panel on Climate Change 2014a and Intergovernmental Panel on Climate Change 2014b. https://www.ipcc.ch/publications_and_data/ar4/wg1/en/ch2s2-10-2.html		

4.0 Modeling Parameters and Assumptions

4.1 Construction

Typical emission rates from construction activities were obtained from CalEEMod Version 2016.3.2. CalEEMod is a computer model published by the SCAQMD for estimating air pollutant emissions. The CalEEMod program uses the EMFAC2014 computer program to calculate the emission rates specific for the northwestern portion of Riverside County for construction-related employee vehicle trips and the OFFROAD2011 computer program to calculate emission rates for heavy truck operations. EMFAC2014 and OFFROAD2011 are computer programs generated by CARB that calculates composite emission rates for vehicles. Emission rates are reported by the program in grams per trip and grams per mile or grams per running hour. Using CalEEMod, the peak daily air pollutant emissions were calculated and presented below. These emissions represent the highest level of emissions for each of the construction phases in terms of air pollutant emissions.

The analysis assesses the emissions associated with the construction of the proposed project as indicated in Table 1. Per the project-specific traffic impact analysis (TJW Engineering, Inc.) the proposed project is to be operational in 2024; therefore, construction is estimated to start no sooner than mid-February 2023 and end by the beginning of January 2024. The phases of the construction activities which have been analyzed below are: 1) site preparation, 2) grading, 3) building, 4) paving, and 5) architectural coating. For details on construction modeling and construction equipment for each phase, please see Appendix A.

The project will be required to comply with existing SCAQMD rules for the reduction of fugitive dust emissions. SCAQMD Rule 403 establishes these procedures. Compliance with this rule is achieved through application of standard best management practices in construction and operation activities, such as application of water or chemical stabilizers to disturbed soils, managing haul road dust by application of water, covering haul vehicles, restricting vehicle speeds on unpaved roads to 15 mph, sweeping loose dirt from paved site access roadways, cessation of construction activity when winds exceed 25 mph and establishing a permanent, stabilizing ground cover on finished sites. In addition, projects that disturb 50 acres or more of soil or move 5,000 cubic yards of materials per day are required to submit a Fugitive Dust Control Plan or a Large Operation Notification Form to SCAQMD. Based on the size of the Project area [approximately 1.25 acres (total site is approximately 1.7 acres with an existing market, cell tower, and parking lot covering approximately 0.45 acres that are to remain)] and the fact that the project won't export more than 5,000 cubic yards of material a day a Fugitive Dust Control Plan or Large Operation Notification would not be required.

SCAQMD's Rule 403 minimum requirements require that the application of the best available dust control measures are used for all grading operations and include the application of water or other soil stabilizers in sufficient quantity to prevent the generation of visible dust plumes. Compliance with Rule 403 would require the use of water trucks during all phases where earth moving operations would occur. Compliance with Rule 403 is required.

4.2 Operations

Operational or long-term emissions occur over the life of the Project. Both mobile and area sources generate operational emissions. Area source emissions arise from consumer product usage, heaters that consume natural gas, gasoline-powered landscape equipment, and architectural coatings (painting). Mobile source emissions from motor vehicles are the largest single long-term source of air pollutants from the operation of the Project. Small amounts of emissions would also occur from area sources such as the consumption of natural gas for heating, hearths, from landscaping emissions, and consumer product usage. The operational emissions were estimated using the latest version of CalEEMod.

Mobile Sources

Mobile sources include emissions from the additional vehicle miles generated from the proposed project. The vehicle trips associated with the proposed project are based upon the trip generation rates given in the project-specific traffic impact analysis (TJW Engineering, Inc.) which uses the ITE 10th Trip Generation Manual. The traffic study shows a trip generation rate of 172.01 trips per fuel pump for the gas station, 112.18 trips per thousand square feet for the sit down restaurant, and 37.75 trips per thousand square feet for the retail use.

The program then applies the emission factors for each trip which is provided by the EMFAC2014 model to determine the vehicular traffic pollutant emissions. The CalEEMod default trip lengths were used in this analysis. Please see CalEEMod output comments sections in Appendix A and B for details.

Area Sources

Area sources include emissions from consumer products, landscape equipment and architectural coatings. Landscape maintenance includes fuel combustion emissions from equipment such as lawn mowers, rototillers, shredders/grinders, blowers, trimmers, chain saws, and hedge trimmers, as well as air compressors, generators, and pumps. As specifics were not known about the landscaping equipment fleet, CalEEMod defaults were used to estimate emissions from landscaping equipment.

Per SCAQMD Rule 1113 as amended on June 3, 2011, the architectural coatings that would be applied after January 1, 2014 will be limited to an average of 50 grams per liter or less and the CalEEMod model default was utilized as the new model takes this rule into account.

Energy Usage

2016.3.2 CalEEMod defaults were utilized.

4.3 Localized Construction Analysis

The SCAQMD has published a "Fact Sheet for Applying CalEEMod to Localized Significance Thresholds" (South Coast Air Quality Management District 2011b). CalEEMod calculates construction emissions based on the number of equipment hours and the maximum daily disturbance activity possible for each piece of equipment. In order to compare CalEEMod reported emissions against the localized significance threshold lookup tables, the CEQA document should contain in its project design features or its mitigation measures the following parameters:

1. The off-road equipment list (including type of equipment, horsepower, and hours of operation) assumed for the day of construction activity with maximum emissions.
2. The maximum number of acres disturbed on the peak day.
3. Any emission control devices added onto off-road equipment.
4. Specific dust suppression techniques used on the day of construction activity with maximum emissions.

The construction equipment showing the equipment associated with the maximum area of disturbance is shown in Table 7.

Table 7: Construction Equipment Assumptions¹

Activity	Equipment	Number	Acres/8hr-day	Total Acres
Site Preparation	Graders	1	0.5	0.5
	Tractors/Loaders/Backhoes	1	0.5	0.5
	Rubber Tired Dozers	1	0.5	0.5
Total Per Phase				1.5
Grading	Graders	1	0.5	0.5
	Rubber Tired Dozers	1	0.5	0.5
	Tractors/Loaders/Backhoes	1	0.5	0.5
Total Per Phase				1.5
Notes:				
¹ Source: South Coast AQMD, Fact Sheet for Applying CalEEMod to Localized Significance Thresholds. http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/caleemod-guidance.pdf?sfvrsn=2				

As shown in Table 7, the maximum number of acres disturbed in a day would be 1.5 acres.

The local air quality emissions from construction were analyzed using the SCAQMD's Mass Rate Localized Significant Threshold Look-up Tables and the methodology described in Localized Significance Threshold Methodology, prepared by SCAQMD, revised July 2008. The Look-up Tables were developed by the SCAQMD in order to readily determine if the daily emissions of CO, NOx, PM10, and PM2.5 from the proposed project could result in a significant impact to the local air quality. The emission thresholds were based on the Perris Valley source receptor area (SRA 24) and a disturbance of 1 acre per day, to be conservative, at a distance of 25 meters (82 feet). According to LST methodology, any receptor located closer than 25 meters should be based on the 25 meter threshold. The closest receptors are adjacent to the east of the site.

4.4 Localized Operational Analysis

For operational emissions, the screening tables for a disturbance area of 1 acre, to be conservative, and a distance of 25 meters were used to determine significance. The tables were compared to the project's onsite operational emissions.

5.0 Thresholds of Significance

5.1 Air Quality Thresholds of Significance

5.1.1 CEQA Guidelines for Air Quality

The CEQA Guidelines define a significant effect on the environment as “a substantial, or potentially substantial, adverse change in the environment.” To determine if a project would have a significant impact on air quality, the type, level, and impact of emissions generated by the project must be evaluated.

The following air quality significance thresholds are contained in Appendix G of the CEQA Guidelines. A significant impact would occur if the project would:

- a) Conflict with or obstruct implementation of the applicable air quality plan;
- b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable national or state ambient air quality standard;
- c) Expose sensitive receptors to substantial pollutant concentrations; or
- d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

While the final determination of whether a project is significant is within the purview of the Lead Agency pursuant to Section 15064(b) of the CEQA Guidelines, SCAQMD recommends that its quantitative air pollution thresholds be used to determine the significance of project emissions. If the Lead Agency finds that the project has the potential to exceed these air pollution thresholds, the project should be considered to have significant air quality impacts. There are daily emission thresholds for construction and operation of a proposed project in the basin.

5.1.2 Regional Significance Thresholds for Construction Emissions

The following CEQA significance thresholds for construction emissions are established for the Basin:

- 75 pounds per day (lbs/day) of VOC
- 100 lbs/day of NO_x
- 550 lbs/day of CO
- 150 lbs/day of PM₁₀
- 55 lbs/day of PM_{2.5}
- 150 lbs/day of SO₂

Projects in the basin with construction-related emissions that exceed any of the emission thresholds are considered to be significant under SCAQMD guidelines.

5.1.3 Regional Significance Thresholds for Operational Emissions

The daily operational emissions significance thresholds for the basin are as follows:

- 55 pounds per day (lbs/day) of VOC
- 55 lbs/day of NO_x

- 550 lbs/day of CO
- 150 lbs/day of PM₁₀
- 55 lbs/day of PM_{2.5}
- 150 lbs/day of SO₂

Local Microscale Concentration Standards The significance of localized project impacts under CEQA depends on whether ambient CO levels in the vicinity of the project are above or below State and federal CO standards. If ambient levels are below the standards, a project is considered to have a significant impact if project emissions result in an exceedance of one or more of these standards. If ambient levels already exceed a State or federal standard, project emissions are considered significant if they increase 1-hour CO concentrations by 1.0 ppm or more or 8-hour CO concentrations by 0.45 ppm or more. The following are applicable local emission concentration standards for CO:

- California State 1-hour CO standard of 20.0 ppm
- California State 8-hour CO standard of 9.0 ppm

5.1.4 Thresholds for Localized Significance

Project-related construction air emissions may have the potential to exceed the State and Federal air quality standards in the project vicinity, even though these pollutant emissions may not be significant enough to create a regional impact to the South Coast Air Basin. In order to assess local air quality impacts the SCAQMD has developed Localized Significant Thresholds (LSTs) to assess the project-related air emissions in the project vicinity. The SCAQMD has also provided Final Localized Significant Threshold Methodology (LST Methodology), June 2003, which details the methodology to analyze local air emission impacts. The Localized Significant Threshold Methodology found that the primary emissions of concern are NO₂, CO, PM₁₀, and PM_{2.5}.

The emission thresholds were calculated based on the Perris Valley source receptor area (SRA 24) and a disturbance of 1 acre per day, to be conservative, at a distance of 25 meters (82 feet), for construction and 1 acre per day, to be conservative, for screening of localized operational emissions.

5.2 Greenhouse Gas Thresholds of Significance

5.2.1 CEQA Guidelines for Greenhouse Gas

CEQA Guidelines define a significant effect on the environment as “a substantial, or potentially substantial, adverse change in the environment.” To determine if a project would have a significant impact on greenhouse gases, the type, level, and impact of emissions generated by the project must be evaluated.

The following greenhouse gas significance thresholds are contained in Appendix G of the CEQA Guidelines, which were amendments adopted into the Guidelines on March 18, 2010, pursuant to SB 97. A significant impact would occur if the project would:

- (a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or

- (b) Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

However, despite this, currently neither the CEQA statutes, OPR guidelines, nor the draft proposed changes to the CEQA Guidelines prescribe thresholds of significance or a particular methodology for performing an impact analysis; as with most environmental topics, significance criteria are left to the judgment and discretion of the Lead Agency. As previously discussed (Section 2.2.4 of this report), SCAQMD has drafted interim thresholds. The screening threshold of 3,000 MTCO_{2e} per year for all land uses was used in this analysis.

5.3 Toxic Air Contaminants

The threshold for toxic air contaminants (TACs) has a maximum incremental cancer risk of 10 per million and a non-cancer (acute and chronic) hazard index of 1.0 or greater. An exceedance to these values would be considered a significant impact.

6.0 Air Quality Emissions Impact

6.1 Construction Air Quality Emissions Impact

The latest version of CalEEMod was used to estimate the onsite and offsite construction emissions. The emissions incorporate Rule 402 and 403. Rule 402 and 403 (fugitive dust) are not considered mitigation measures as the project by default is required to incorporate these rules during construction.

6.1.1 Regional Construction Emissions

The construction emissions for the project would not exceed the SCAQMD's daily emission thresholds at the regional level as demonstrated in Table 8, and therefore would be considered less than significant.

Table 8: Regional Significance - Construction Emissions (pounds/day)

Activity	Pollutant Emissions (pounds/day)					
	VOC	NOx	CO	SO ₂	PM10	PM2.5
Site Preparation						
On-Site ²	1.13	12.43	6.64	0.02	2.62	1.60
Off-Site ³	0.05	0.52	0.35	0.00	0.16	0.04
Total	1.18	12.94	6.99	0.02	2.79	1.65
Grading						
On-Site ²	0.93	10.18	5.55	0.01	2.34	1.37
Off-Site ³	0.03	0.02	0.25	0.00	0.09	0.02
Total	0.97	10.20	5.80	0.01	2.43	1.40
Building Construction						
On-Site ²	1.52	11.71	12.61	0.02	0.51	0.50
Off-Site ³	0.11	0.64	0.81	0.00	0.31	0.08
Total	1.63	12.35	13.43	0.03	0.82	0.58
Paving						
On-Site ²	0.81	6.24	8.80	0.01	0.31	0.28
Off-Site ³	0.05	0.03	0.41	0.00	0.15	0.04
Total	0.86	6.27	9.21	0.01	0.45	0.32
Architectural Coating						
On-Site ²	6.75	1.30	1.81	0.00	0.07	0.07
Off-Site ³	0.02	0.01	0.13	0.00	0.05	0.01
Total	6.77	1.31	1.94	0.00	0.12	0.08
Total of overlapping phases⁴	9.27	19.93	24.57	0.04	1.39	0.99
SCAQMD Thresholds	75	100	550	150	150	55
Exceeds Thresholds	No	No	No	No	No	No
Notes:						
¹ Source: CalEEMod Version 2016.3.2						
² On-site emissions from equipment operated on-site that is not operated on public roads.						
³ Off-site emissions from equipment operated on public roads.						
⁴ Construction, architectural coatings and paving phases may overlap.						

6.1.2 Localized Construction Emissions

The data provided in Table 9 shows that none of the analyzed criteria pollutants would exceed the local emissions thresholds at the nearest sensitive receptors. Therefore, a less than significant local air quality impact would occur from construction of the proposed project.

Table 9: Localized Significance – Construction

Phase	On-Site Pollutant Emissions (pounds/day) ¹			
	NOx	CO	PM10	PM2.5
Site Preparation	12.43	6.64	2.62	1.60
Grading	10.18	5.55	2.34	1.37
Building Construction	11.71	12.61	0.51	0.50
Paving	6.24	8.80	0.31	0.28
Architectural Coating	1.30	1.81	0.07	0.07
Total of overlapping phases	19.25	23.22	0.89	0.85
SCAQMD Threshold for 25 meters (82 feet) or less²	118	602	4	3
Exceeds Threshold?	No	No	No	No
Notes:				
¹ Source: Calculated from CalEEMod and SCAQMD's Mass Rate Look-up Tables for one acre in Perris Valley Source Receptor Area (SRA 24). Project will disturb a maximum of 1.5 acres per day (see Table 7).				
² The nearest sensitive receptors are located adjacent to the east of the project site, however according to LST methodology any receptor located closer than 25 meters should be based on the 25 meter threshold.				

6.1.3 Odors

Potential sources that may emit odors during construction activities include the application of materials such as asphalt pavement. The objectionable odors that may be produced during the construction process are of short-term in nature and the odor emissions are expected cease upon the drying or hardening of the odor producing materials. Diesel exhaust and VOCs would be emitted during construction of the project, which are objectionable to some; however, emissions would disperse rapidly from the project site and therefore should not reach an objectionable level at the nearest sensitive receptors. Due to the short-term nature and limited amounts of odor producing materials being utilized, no significant impact related to odors would occur during construction of the proposed project.

The SCAQMD recommends that odor impacts be addressed in a qualitative manner. Such an analysis shall determine whether the project would result in excessive nuisance odors, as defined under the California Code of Regulations and Section 41700 of the California Health and Safety Code, and thus would constitute a public nuisance related to air quality.

Potential sources that may emit odors during the on-going operations of the proposed project would include odor emissions from the service station operations. Due to the distance of the nearest receptors from the project site and through compliance with SCAQMD's Rule 402 no significant impact related to odors would occur during the on-going operations of the proposed project. Furthermore, Gasoline dispensing facilities are required to use Phase I/II EVR (enhanced vapor recovery) systems. Vehicle emissions are vapor recovery systems are addressed in Section 6.2.2.

6.1.4 Construction-Related Toxic Air Contaminant Impact

The greatest potential for toxic air contaminant emissions would be related to diesel particulate emissions associated with heavy equipment operations during construction of the proposed project. The Office of Environmental Health Hazard Assessment (OEHHA) has issued the Air Toxic Hot Spots Program Risk Assessment Guidelines and Guidance Manual for the Preparation of Health Risk Assessments, February 2015 to provide a description of the algorithms, recommended exposure variates, cancer and non-cancer health values, and the air modeling protocols needed to perform a health risk assessment (HRA) under the Air Toxics Hot Spots Information and Assessment Act of 1987. Hazard identification includes identifying all substances that are evaluated for cancer risk and/or non-cancer acute, 8-hour, and chronic health impacts. In addition, identifying any multi-pathway substances that present a cancer risk or chronic non-cancer hazard via non-inhalation routes of exposure.

Given the relatively limited number of heavy-duty construction equipment and construction schedule, the proposed project would not result in a long-term substantial source of toxic air containment emissions and corresponding individual cancer risk. Furthermore, construction-based particulate matter (PM) emissions (including diesel exhaust emissions) do not exceed any local or regional thresholds. Therefore, no significant short-term toxic air contaminant impacts would occur during construction of the proposed project.

6.2 Operational Air Quality Emissions Impact

6.2.1 Regional Operational Emissions

The operations-related criteria air quality impacts created by the proposed project have been analyzed through the use of CalEEMod model. The operating emissions were based on year 2024, which is the anticipated opening year for the project per the project-specific traffic impact analysis (TJW Engineering, Inc.). The summer and winter emissions created by the proposed project's long-term operations were calculated and the highest emissions from either summer or winter are summarized in Table 10.

Table 10: Regional Significance - Unmitigated Operational Emissions (lbs/day)

Activity	Pollutant Emissions (pounds/day) ¹					
	VOC	NOx	CO	SO2	PM10	PM2.5
Area Sources ²	0.15	0.00	0.01	0.00	0.00	0.00
Energy Usage ³	0.02	0.19	0.16	0.00	0.01	0.01
Mobile Sources ⁴	2.09	12.74	11.74	0.05	2.94	0.80
Total Emissions	2.25	12.93	11.91	0.05	2.96	0.82
SCAQMD Thresholds	55	55	550	150	150	55
Exceeds Threshold?	No	No	No	No	No	No

Notes:

¹ Source: CalEEMod Version 2016.3.2

² Area sources consist of emissions from consumer products, architectural coatings, and landscaping equipment.

³ Energy usage consists of emissions from on-site natural gas usage.

⁴ Mobile sources consist of emissions from vehicles and road dust.

Table 10 provides the project's unmitigated operational emissions. Table 10 shows that the project does not exceed the SCAQMD daily emission threshold and regional operational emissions are considered to be less than significant.

6.2.2 Localized Operational Emissions

Table 11 shows the calculated emissions for the proposed operational activities compared with appropriate LSTs. The LST analysis only includes on-site sources; however, the CalEEMod software outputs do not separate on-site and off-site emissions for mobile sources. For a worst-case scenario assessment, the emissions shown in Table 11 include all on-site project-related stationary sources and 10% of the project-related new mobile sources. This percentage is an estimate of the amount of project-related new vehicle traffic that will occur on-site.

Table 11: Localized Significance – Unmitigated Operational Emissions

On-Site Emission Source	On-Site Pollutant Emissions (pounds/day) ¹			
	NOx	CO	PM10	PM2.5
Area Sources ²	0.00	0.01	0.00	0.00
Energy Usage ³	0.19	0.16	0.01	0.01
On-Site Vehicle Emissions ⁴	1.27	1.17	0.29	0.08
Total Emissions	1.46	1.34	0.31	0.09
SCAQMD Threshold for 25 meters (82 feet)⁵	118	602	1	1
Exceeds Threshold?	No	No	No	No

Notes:
¹ Source: Calculated from CalEEMod and SCAQMD's Mass Rate Look-up Tables for one acre in Perris Valley Source Receptor Area (SRA 24).
² Area sources consist of emissions from consumer products, architectural coatings, and landscaping equipment.
³ Energy usage consists of emissions from generation of electricity and on-site natural gas usage.
⁴ On-site vehicular emissions based on 1/10 of the gross vehicular emissions and road dust.
⁵ The nearest sensitive receptors are located adjacent to the east of the project site, however according to LST methodology any receptor located closer than 25 meters should be based on the 25 meter threshold.

Table 11 indicates that the local operational emission would not exceed the LST thresholds at the nearest sensitive receptors, located adjacent to the project. Therefore, the project will not result in significant Localized Operational emissions.

6.3 CO Hot Spot Emissions

CO is the pollutant of major concern along roadways because the most notable source of CO is motor vehicles. For this reason, CO concentrations are usually indicative of the local air quality generated by a roadway network and are used as an indicator of potential local air quality impacts. Local air quality impacts can be assessed by comparing future without and with project CO levels to the State and Federal CO standards which were presented in above in Section 5.0.

To determine if the proposed project could cause emission levels in excess of the CO standards discussed above in Section 5.0, a sensitivity analysis is typically conducted to determine the potential for CO "hot spots" at a number of intersections in the general project vicinity. Because of reduced speeds and vehicle queuing, "hot spots" potentially can occur at high traffic volume intersections with a Level of Service E or worse.

Micro-scale air quality emissions have traditionally been analyzed in environmental documents where the air basin was a non-attainment area for CO. However, the SCAQMD has demonstrated in the CO attainment redesignation request to EPA that there are no “hot spots” anywhere in the air basin, even at intersections with much higher volumes, much worse congestion, and much higher background CO levels than anywhere in Riverside County. If the worst-case intersections in the air basin have no “hot spot” potential, any local impacts will be below thresholds.

The traffic study showed that the highest peak hour intersection volume is 576 trips per day for the existing plus ambient plus cumulative plus project (2024) PM scenario. The 1992 Federal Attainment Plan for Carbon Monoxide (1992 CO Plan) showed that an intersection which has a daily traffic volume of approximately 100,000 vehicles per day would not violate the CO standard. The volume of traffic at project buildout with cumulative projects would be well below 100,000 vehicles and below the necessary volume to even get close to causing a violation of the CO standard. Therefore no CO “hot spot” modeling was performed and no significant long-term air quality impact is anticipated to local air quality with the on-going use of the proposed project.

6.4 Cumulative Regional Air Quality Impacts

Cumulative projects include local development as well as general growth within the project area. However, as with most development, the greatest source of emissions is from mobile sources, which travel well out of the local area. Therefore, from an air quality standpoint, the cumulative analysis would extend beyond any local projects and when wind patterns are considered, would cover an even larger area. Accordingly, the cumulative analysis for the project’s air quality must be generic by nature.

The project area is out of attainment for both ozone and PM10 particulate matter. Construction and operation of cumulative projects will further degrade the local air quality, as well as the air quality of the South Coast Air Basin. The greatest cumulative impact on the quality of regional air cell will be the incremental addition of pollutants mainly from increased traffic from residential, commercial, and industrial development and the use of heavy equipment and trucks associated with the construction of these projects. Air quality will be temporarily degraded during construction activities that occur separately or simultaneously. However, in accordance with the SCAQMD methodology, projects that do not exceed the SCAQMD criteria or can be mitigated to less than criteria levels are not significant and do not add to the overall cumulative impact. The project does not exceed any of the thresholds of significance and therefore is considered less than significant.

6.5 Air Quality Compliance

The California Environmental Quality Act (CEQA) requires a discussion of any inconsistencies between a proposed project and applicable General Plans and Regional Plans (CEQA Guidelines Section 15125). The regional plan that applies to the proposed project includes the SCAQMD Air Quality Management Plan (AQMP). Therefore, this section discusses any potential inconsistencies of the proposed project with the AQMP.

The purpose of this discussion is to set forth the issues regarding consistency with the assumptions and objectives of the AQMP and discuss whether the proposed project would interfere with the region’s

ability to comply with Federal and State air quality standards. If the decision-makers determine that the proposed project is inconsistent, the lead agency may consider project modifications or inclusion of mitigation to eliminate the inconsistency.

The SCAQMD CEQA Handbook states that "New or amended General Plan Elements (including land use zoning and density amendments), Specific Plans, and significant projects must be analyzed for consistency with the AQMP." Strict consistency with all aspects of the plan is usually not required. A proposed project should be considered to be consistent with the AQMP if it furthers one or more policies and does not obstruct other policies. The SCAQMD CEQA Handbook identifies two key indicators of consistency:

- (1) Whether the project will result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP.
- (2) Whether the project will exceed the assumptions in the AQMP in 2016 or increments based on the year of project buildout and phase.

Both of these criteria are evaluated in the following sections.

A. Criterion 1 - Increase in the Frequency or Severity of Violations

Based on the air quality modeling analysis contained in this Air Analysis, neither short-term construction impacts, nor long-term operations will result in significant impacts based on the SCAQMD regional and local thresholds of significance.

Therefore, the proposed project is not projected to contribute to the exceedance of any air pollutant concentration standards and is found to be consistent with the AQMP for the first criterion.

B. Criterion 2 - Exceed Assumptions in the AQMP?

Consistency with the AQMP assumptions is determined by performing an analysis of the proposed project with the assumptions in the AQMP. The emphasis of this criterion is to ensure that the analyses conducted for the proposed project are based on the same forecasts as the AQMP. The 2016-2040 Regional Transportation/Sustainable Communities Strategy, prepared by SCAG, 2016, includes chapters on: the challenges in a changing region, creating a plan for our future, and the road to greater mobility and sustainable growth. These chapters currently respond directly to federal and state requirements placed on SCAG. Local governments are required to use these as the basis of their plans for purposes of consistency with applicable regional plans under CEQA. For this project, the City of Moreno Valley General Plan Land Use Map defines the assumptions that are represented in the AQMP.

The proposed project is currently zoned Village Commercial (VC) and classified as Commercial Land Use according to the City of Moreno Valley General Plan Land Use Map and the proposed project is consistent with the current land use designations and zoning. Therefore, it is not anticipated that the project would exceed the AQMP assumptions for the project site, and is found to be consistent with the AQMP for the second criterion.

Based on the above, the proposed project will not result in an inconsistency with the SCAQMD AQMP. Therefore, a less than significant impact will occur.

7.0 Greenhouse Gas Impact Analysis

7.1 Construction Greenhouse Gas Emissions Impact

The greenhouse gas emissions from project construction equipment and worker vehicles are shown in Table 12. The emissions are from all phases of construction. The total construction emissions amortized over a period of 30 years are estimated at 7.8 metric tons of CO₂e per year. Annual CalEEMod output calculations are provided in Appendix B.

Table 12: Construction Greenhouse Gas Emissions

Activity	Emissions (MTCO ₂ e) ¹		
	Onsite	Offsite	Total
Site Preparation	1.5	0.3	1.9
Grading	2.5	0.1	2.6
Building Construction	182.4	39.4	221.7
Paving	5.9	0.5	6.5
Coating	1.2	0.1	1.3
Total	193.5	40.5	234.0
Averaged over 30 years²	6	1	7.80

Notes:
¹ MTCO₂e=metric tons of carbon dioxide equivalents (includes carbon dioxide, methane and nitrous oxide).
² The emissions are averaged over 30 years because the average is added to the operational emissions, pursuant to SCAQMD.
 * CalEEMod output (Appendix B)

7.2 Operational Greenhouse Gas Emissions Impact

Operational emissions occur over the life of the project. The operational emissions for the project are 944.37 metric tons of CO₂e per year as shown in Table 13. These emissions do not exceed the SCAQMD screening threshold for all land uses of 3,000 metric tons of CO₂e per year. Therefore, the project's GHG emissions are considered to be less than significant.

<Table 13 next page>

Table 13: Opening Year Unmitigated Project-Related Greenhouse Gas Emissions

Category	Greenhouse Gas Emissions (Metric Tons/Year) ¹					
	Bio-CO ₂	NonBio-CO ₂	CO ₂	CH ₄	N ₂ O	CO ₂ e
Area Sources ²	0.00	0.00	0.00	0.00	0.00	0.00
Energy Usage ³	0.00	90.32	90.32	0.00	0.00	90.73
Mobile Sources ⁴	0.00	822.09	822.09	0.06	0.00	823.67
Solid Waste ⁵	6.47	0.00	6.47	0.38	0.00	16.02
Water ⁶	0.31	4.78	5.10	0.03	0.00	6.15
Construction ⁷	0.00	7.77	7.77	0.00	0.00	7.80
Total Emissions	6.78	924.97	931.75	0.48	0.00	944.37
SCAQMD Draft Screening Threshold						3,000
Exceeds Threshold?						No
Notes:						
¹ Source: CalEEMod Version 2016.3.2						
² Area sources consist of GHG emissions from consumer products, architectural coatings, and landscape equipment.						
³ Energy usage consist of GHG emissions from electricity and natural gas usage.						
⁴ Mobile sources consist of GHG emissions from vehicles.						
⁵ Solid waste includes the CO ₂ and CH ₄ emissions created from the solid waste placed in landfills.						
⁶ Water includes GHG emissions from electricity used for transport of water and processing of wastewater.						
⁷ Construction GHG emissions based on a 30 year amortization rate.						

7.3 Greenhouse Gas Plan Consistency

The proposed project would have the potential to conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases. The applicable plans for the proposed project are the City of Moreno Valley Greenhouse Gas Analysis (adopted February 2012) and the City of Moreno Valley Energy Efficiency and Climate Action Strategy (adopted October 2012). The City of Moreno Valley has adopted these plans in order to assist the City in conforming to the GHG emissions reductions as mandated under AB 32.

As stated previously, the SCAQMD's tier 3 thresholds used Executive Order S-3-05 goal as the basis for deriving the screening level. The California Governor issued Executive Order S-3-05, GHG Emission, in June 2005, which established the following reduction targets:

- 2010: Reduce greenhouse gas emissions to 2000 levels
- 2020: Reduce greenhouse gas emissions to 1990 levels
- 2050: Reduce greenhouse gas emissions to 80 percent below 1990 levels.

In 2006, the California State Legislature adopted AB 32, the California Global Warming Solutions Act of 2006. AB 32 requires CARB, to adopt rules and regulations that would achieve GHG emissions equivalent to statewide levels in 1990 by 2020 through an enforceable statewide emission cap which was phased in starting in 2012.

Projects whose emissions meet the threshold for compliance with Executive Order S-3-05, would also comply with the goals of AB 32 and the City of Moreno Valley Energy Efficiency and Climate Action Strategy. Additionally, if a project meets the current interim emissions targets/thresholds established by SCAQMD (as described in Section V, Air Quality Standards), the project would also be on track to

meet the reduction target of 40 percent below 1990 levels by 2030 mandated by SB-32. Furthermore, all of the post 2020 reductions in GHG emissions are addressed via regulatory requirements at the State level and the project will be required to comply with these regulations as they come into effect.

At a level of 944.37 MTCO₂e per year, the GHG emissions of the proposed project do not exceed SCAQMD thresholds and are in compliance with the reduction goals of the City of Moreno Valley Energy Efficiency and Climate Action Strategy, AB-32 and SB-32. Therefore, the proposed project would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases and impacts are considered to be less than significant.

8.0 Health Risk Assessment

CARB (and CAPCOA) recommend a 50-foot separation between gas stations and sensitive receptors; therefore, the approximately 150-foot separation from the single-family residential dwelling units to the east from the underground storage tanks and approximately 170-foot separation from the single-family residential dwelling units to the north from the fueling pump canopy should be more than adequate (these are the closest sensitive receptors from either the tanks or fueling pumps). Furthermore, the attached (Appendix C) SCAQMD gasoline station HRA screening tables show that the MICR at residential receptors 25 meters (the tanks and pumps are located further away @ approximately 46 meters at the nearest point) from the fuel source would not even exceed 3.494 in a million (per 1,000,000 gallons of through put); which is a reasonable assumption given the size of the project and number of pumps). The proposed project is estimated to have approximately 0.94MM gallons of through put per year which equates to an approximate 1.58 in a million MICR, at a distance of approximately 46 meters. The risk is below SCAQMD's 10 in a million threshold and therefore no additional mitigation is required.

Furthermore, the project includes the construction and operation of a gas station with 8 fuel pumps. The fuel pump-portion of the project will be permitted by SCAQMD and fuel-related emissions will be regulated by the SCAQMD Rule 461 and be required to obtain a Permit To Operate. Gasoline dispensing facilities are required to use Phase I/II EVR (enhanced vapor recovery) systems. Phase II EVR have an average efficiency of 95.1 percent and Phase I EVR have an average efficiency of 98 percent. Therefore, the potential for fugitive VOC or TAC emissions from the gasoline pumps is negligible. As such, the project will not be a source of toxic air contaminants or fugitive VOC emissions and sensitive receptors (located as close as approximately 170 feet from the proposed gasoline fueling pumps) would not be exposed to toxic sources of air pollution. The separating distance between the gas station and closest sensitive receptors is greater than the SCAQMD's minimum 50-foot separation.

According to the ARB's: *Revised Emission Factors for Gasoline Marketing Operations at California Gasoline Dispensing Facilities (12/23/2013)*¹, both Phase I and Phase II EVR systems have a minimum 95.1% efficiency at capturing emissions. Emission inventory is based upon two (2) factors: 8.4 lbs of TOG per thousand gallons dispensed (lbs/kgal) and 0.74 lbs/kgal for Gasoline Dispensing Facilities with Phase II pre-EVR vapor recovery.

These factors are based upon pre-EVR vapor recovery systems. Assuming a 95% vapor recovery rate, the majority of the emissions would be captured and the additional VOCs that would potentially escape these mandatory recovery systems is anticipated to be relatively small. Per Table 10, the project's unmitigated operational VOC emissions are 2.25 lbs/day. At 2,611 gallons per day the calculated uncontrolled ORVR VOC would be 22 lbs/day. Even if an additional 22 lbs/day (the uncontrolled [no ORVR or phase II] vehicle fueling emission factor for each 1,000 gallons pumped)

¹ <https://www.arb.ca.gov/vapor/gdf-emisfactor/gdf%20umbrella%20document%20-%202020%20nov%202013.pdf>

were added to the project's operational VOC emissions), the total emissions of 24.25 lbs/day would not exceed the SCAQMD's operational threshold of significance of 55 lbs per day for VOC. However, the vehicle fueling emissions factor with ORVR and Phase II EVR in place is 0.021 lbs per thousand gallons which equates to 0.055 lbs/day. The emissions amount is below the VOC threshold of significance and the impact is less than significant. Furthermore, both ORVR and Phase II EVRs are required per regulation in California.

To exceed the VOC daily emissions threshold the gas pumps at the project site would have to pump over a million gallons of fuel per day to exceed the daily VOC threshold.

9.0 References

The following references were used in the preparing this analysis.

California Air Pollution Control Officers Association

2009 Health Risk Assessments for Proposed Land Use Projects

California Air Resources Board

2008 Resolution 08-43

2008 Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the California Environmental Quality Act

2008 ARB Recommended Interim Risk Management Policy for Inhalation-Based Residential Cancer Risk – Frequently Asked Questions

2008 Climate Change Scoping Plan, a framework for change.

2011 Supplement to the AB 32 Scoping Plan Functional Equivalent Document

2013 Revised Emission Factors for Gasoline Marketing Operations at California Gasoline Dispensing Facilities

2014 First Update to the Climate Change Scoping Plan, Building on the Framework Pursuant to AB32, the California Global Warming Solutions Act of 2006. May.

2018 Historical Air Quality, Top 4 Summary

City of Moreno Valley

2006 City of Moreno Valley General Plan. July 11.

2012 City of Moreno Valley Energy Efficiency and Climate Action Strategy. October.

Governor's Office of Planning and Research

2008 CEQA and Climate: Addressing Climate Change Through California Environmental Quality Act (CEQA) Review

2009 CEQA Guideline Sections to be Added or Amended

Office of Environmental Health Hazard Assessment

2015 Air Toxics Hot Spots Program Risk Assessment Guidelines

South Coast Air Quality Management District

- 1993 CEQA Air Quality Handbook
- 2005 Rule 403 Fugitive Dust
- 2007 2007 Air Quality Management Plan
- 2008 Final Localized Significance Threshold Methodology, Revised
- 2011 Appendix A Calculation Details for CalEEMod
- 2012 Final 2012 Air Quality Management Plan
- 2016 Final 2016 Air Quality Management Plan
- TJW Engineering, Inc.**
- 2019 Redlands Alessandro Commercial Plaza Traffic Impact Analysis, City of Moreno Valley, CA. August 30.

Appendix A:

CalEEMod Daily Emission Output

04701806 Farm Market Improvement Development - Riverside-South Coast County, Summer

04701806 Farm Market Improvement Development
Riverside-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Regional Shopping Center	2.00	1000sqft	0.05	2,000.00	0
High Turnover (Sit Down Restaurant)	2.50	1000sqft	0.06	2,500.00	0
Convenience Market With Gas Pumps	8.00	Pump	0.03	1,129.40	0
Parking Lot	37.00	Space	0.63	27,443.00	0
Other Non-Asphalt Surfaces	0.48	Acre	0.48	20,908.80	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.4	Precipitation Freq (Days)	28
Climate Zone	10			Operational Year	2024
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

04701806 Farm Market Improvement Development - Riverside-South Coast County, Summer

Project Characteristics -

Land Use - ~1.7 ac site - ~0.45 ac existing to remain = ~1.25 ac to be developed w/ 2TSF retail, 2.5TSF restaurant, 8 fuel pump gas station, ~50% (~0.63 ac) of site paving (includes 37 new parking spaces), & remainder landscaping (~0.48 ac).

Construction Phase - Per TIA opening year is 2024, used CalEEMod default timing. No demo, only site prep to remove some of the existing parking/landscaping areas.

Off-road Equipment -

Grading - Site anticipated to be balanced. Site prep of ~0.3 acres (~25% of site) to remove some of the existing landscaping/paving.

Trips and VMT - ~8 hauling trips needed during site prep to remove ~0.3 acres of existing paving/landscaping.

Vehicle Trips - Per TIA, 37.75 trips/TSF/day for retail, 112.18 trips/TSF/day for restaurant, & 172.01 trips/FP/day for gas station.

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation - Site is ~4.54 miles southeast of downtown portion of Moreno Valley.

Water Mitigation - Per CalGreen Standards, 20% indoor water reduction.

Waste Mitigation - AB 341 requires each jurisdiction in CA divert at least 75% of their waste away from landfills by 2020.

Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

04701806 Farm Market Improvement Development - Riverside-South Coast County, Summer

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	PhaseEndDate	11/13/2023	1/1/2024
tblConstructionPhase	PhaseEndDate	10/16/2023	12/4/2023
tblConstructionPhase	PhaseEndDate	1/9/2023	2/27/2023
tblConstructionPhase	PhaseEndDate	10/30/2023	12/18/2023
tblConstructionPhase	PhaseEndDate	1/3/2023	2/21/2023
tblConstructionPhase	PhaseStartDate	10/31/2023	12/19/2023
tblConstructionPhase	PhaseStartDate	1/10/2023	2/28/2023
tblConstructionPhase	PhaseStartDate	1/4/2023	2/22/2023
tblConstructionPhase	PhaseStartDate	10/17/2023	12/5/2023
tblConstructionPhase	PhaseStartDate	1/1/2023	2/18/2023
tblGrading	AcresOfGrading	1.00	0.30
tblLandUse	LandUseSquareFeet	14,800.00	27,443.00
tblLandUse	LotAcreage	0.33	0.63
tblTripsAndVMT	HaulingTripNumber	0.00	8.00
tblVehicleTrips	ST_TR	204.47	172.01
tblVehicleTrips	ST_TR	158.37	112.18
tblVehicleTrips	ST_TR	49.97	37.75
tblVehicleTrips	SU_TR	166.88	172.01
tblVehicleTrips	SU_TR	131.84	112.18
tblVehicleTrips	SU_TR	25.24	37.75
tblVehicleTrips	WD_TR	542.60	172.01
tblVehicleTrips	WD_TR	127.15	112.18
tblVehicleTrips	WD_TR	42.70	37.75

2.0 Emissions Summary

Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

04701806 Farm Market Improvement Development - Riverside-South Coast County, Summer

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	6.7715	12.9419	13.4253	0.0265	5.5878	0.5165	6.0966	2.9565	0.4987	3.4247	0.0000	2,456.2447	2,456.2447	0.5549	0.0000	2,465.1750
2024	6.7596	1.2268	1.9282	3.3500e-003	0.0447	0.0612	0.1059	0.0119	0.0611	0.0730	0.0000	319.5133	319.5133	0.0166	0.0000	319.9282
Maximum	6.7715	12.9419	13.4253	0.0265	5.5878	0.5165	6.0966	2.9565	0.4987	3.4247	0.0000	2,456.2447	2,456.2447	0.5549	0.0000	2,465.1750

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	6.7715	12.9419	13.4253	0.0265	2.2765	0.5165	2.7853	1.1792	0.4987	1.6474	0.0000	2,456.2447	2,456.2447	0.5549	0.0000	2,465.1750
2024	6.7596	1.2268	1.9282	3.3500e-003	0.0447	0.0612	0.1059	0.0119	0.0611	0.0730	0.0000	319.5133	319.5133	0.0166	0.0000	319.9282
Maximum	6.7715	12.9419	13.4253	0.0265	2.2765	0.5165	2.7853	1.1792	0.4987	1.6474	0.0000	2,456.2447	2,456.2447	0.5549	0.0000	2,465.1750

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	58.79	0.00	53.39	59.88	0.00	50.81	0.00	0.00	0.00	0.00	0.00	0.00

Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

04701806 Farm Market Improvement Development - Riverside-South Coast County, Summer

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.1470	5.0000e-005	5.0900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0109	0.0109	3.0000e-005		0.0117
Energy	0.0204	0.1855	0.1558	1.1100e-003		0.0141	0.0141		0.0141	0.0141		222.5777	222.5777	4.2700e-003	4.0800e-003	223.9004
Mobile	2.0870	12.7409	11.7443	0.0511	2.9141	0.0269	2.9410	0.7795	0.0251	0.8045		5,259.6750	5,259.6750	0.3684		5,268.8838
Total	2.2545	12.9264	11.9052	0.0522	2.9141	0.0411	2.9551	0.7795	0.0392	0.8187		5,482.2637	5,482.2637	0.3727	4.0800e-003	5,492.7958

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.1470	5.0000e-005	5.0900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0109	0.0109	3.0000e-005		0.0117
Energy	0.0204	0.1855	0.1558	1.1100e-003		0.0141	0.0141		0.0141	0.0141		222.5777	222.5777	4.2700e-003	4.0800e-003	223.9004
Mobile	2.0609	12.5803	10.9120	0.0471	2.5517	0.0247	2.5765	0.6826	0.0230	0.7056		4,849.3035	4,849.3035	0.3579		4,858.2503
Total	2.2283	12.7658	11.0729	0.0482	2.5517	0.0389	2.5906	0.6826	0.0371	0.7197		5,071.8922	5,071.8922	0.3622	4.0800e-003	5,082.1623

Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

04701806 Farm Market Improvement Development - Riverside-South Coast County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	1.16	1.24	6.99	7.72	12.43	5.38	12.34	12.43	5.26	12.09	0.00	7.49	7.49	2.81	0.00	7.48

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	2/18/2023	2/21/2023	5	2	
2	Grading	Grading	2/22/2023	2/27/2023	5	4	
3	Building Construction	Building Construction	2/28/2023	12/4/2023	5	200	
4	Paving	Paving	12/5/2023	12/18/2023	5	10	
5	Architectural Coating	Architectural Coating	12/19/2023	1/1/2024	5	10	

Acres of Grading (Site Preparation Phase): 0.3

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 1.11

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 8,444; Non-Residential Outdoor: 2,815; Striped Parking Area: 2,901 (Architectural Coating – sqft)

OffRoad Equipment

Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

04701806 Farm Market Improvement Development - Riverside-South Coast County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Site Preparation	Graders	1	8.00	187	0.41
Paving	Pavers	1	6.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	6.00	187	0.41
Paving	Paving Equipment	1	8.00	132	0.36
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Building Construction	Welders	3	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	3	8.00	0.00	8.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	22.00	9.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	4.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

04701806 Farm Market Improvement Development - Riverside-South Coast County, Summer

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.4284	0.0000	5.4284	2.9136	0.0000	2.9136			0.0000			0.0000
Off-Road	1.1339	12.4250	6.6420	0.0172		0.5074	0.5074		0.4668	0.4668		1,666.057 3	1,666.057 3	0.5388		1,679.528 2
Total	1.1339	12.4250	6.6420	0.0172	5.4284	0.5074	5.9358	2.9136	0.4668	3.3804		1,666.057 3	1,666.057 3	0.5388		1,679.528 2

Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

04701806 Farm Market Improvement Development - Riverside-South Coast County, Summer

3.2 Site Preparation - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0127	0.4994	0.0978	2.8800e-003	0.0700	9.5000e-004	0.0709	0.0192	9.1000e-004	0.0201		305.6092	305.6092	0.0144		305.9683
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0333	0.0175	0.2518	7.9000e-004	0.0894	5.0000e-004	0.0899	0.0237	4.6000e-004	0.0242		78.9489	78.9489	1.6400e-003		78.9898
Total	0.0460	0.5169	0.3496	3.6700e-003	0.1594	1.4500e-003	0.1608	0.0429	1.3700e-003	0.0443		384.5581	384.5581	0.0160		384.9582

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.1171	0.0000	2.1171	1.1363	0.0000	1.1363			0.0000			0.0000
Off-Road	1.1339	12.4250	6.6420	0.0172		0.5074	0.5074		0.4668	0.4668	0.0000	1,666.0573	1,666.0573	0.5388		1,679.5282
Total	1.1339	12.4250	6.6420	0.0172	2.1171	0.5074	2.6245	1.1363	0.4668	1.6031	0.0000	1,666.0573	1,666.0573	0.5388		1,679.5282

Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

04701806 Farm Market Improvement Development - Riverside-South Coast County, Summer

3.2 Site Preparation - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0127	0.4994	0.0978	2.8800e-003	0.0700	9.5000e-004	0.0709	0.0192	9.1000e-004	0.0201		305.6092	305.6092	0.0144		305.9683
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0333	0.0175	0.2518	7.9000e-004	0.0894	5.0000e-004	0.0899	0.0237	4.6000e-004	0.0242		78.9489	78.9489	1.6400e-003		78.9898
Total	0.0460	0.5169	0.3496	3.6700e-003	0.1594	1.4500e-003	0.1608	0.0429	1.3700e-003	0.0443		384.5581	384.5581	0.0160		384.9582

3.3 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.9143	0.0000	4.9143	2.5256	0.0000	2.5256			0.0000			0.0000
Off-Road	0.9335	10.1789	5.5516	0.0141		0.4201	0.4201		0.3865	0.3865		1,364.7713	1,364.7713	0.4414		1,375.8062
Total	0.9335	10.1789	5.5516	0.0141	4.9143	0.4201	5.3343	2.5256	0.3865	2.9121		1,364.7713	1,364.7713	0.4414		1,375.8062

Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

04701806 Farm Market Improvement Development - Riverside-South Coast County, Summer

3.3 Grading - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0333	0.0175	0.2518	7.9000e-004	0.0894	5.0000e-004	0.0899	0.0237	4.6000e-004	0.0242		78.9489	78.9489	1.6400e-003		78.9898
Total	0.0333	0.0175	0.2518	7.9000e-004	0.0894	5.0000e-004	0.0899	0.0237	4.6000e-004	0.0242		78.9489	78.9489	1.6400e-003		78.9898

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.9166	0.0000	1.9166	0.9850	0.0000	0.9850			0.0000			0.0000
Off-Road	0.9335	10.1789	5.5516	0.0141		0.4201	0.4201		0.3865	0.3865	0.0000	1,364.7713	1,364.7713	0.4414		1,375.8062
Total	0.9335	10.1789	5.5516	0.0141	1.9166	0.4201	2.3367	0.9850	0.3865	1.3715	0.0000	1,364.7713	1,364.7713	0.4414		1,375.8062

Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

04701806 Farm Market Improvement Development - Riverside-South Coast County, Summer

3.3 Grading - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0333	0.0175	0.2518	7.9000e-004	0.0894	5.0000e-004	0.0899	0.0237	4.6000e-004	0.0242		78.9489	78.9489	1.6400e-003		78.9898
Total	0.0333	0.0175	0.2518	7.9000e-004	0.0894	5.0000e-004	0.0899	0.0237	4.6000e-004	0.0242		78.9489	78.9489	1.6400e-003		78.9898

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5233	11.7104	12.6111	0.0221		0.5145	0.5145		0.4968	0.4968		2,001.7877	2,001.7877	0.3399		2,010.2858
Total	1.5233	11.7104	12.6111	0.0221		0.5145	0.5145		0.4968	0.4968		2,001.7877	2,001.7877	0.3399		2,010.2858

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04701806 Farm Market Improvement Development - Riverside-South Coast County, Summer

3.4 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0150	0.5909	0.1218	2.2500e-003	0.0576	5.9000e-004	0.0582	0.0166	5.7000e-004	0.0172		237.3476	237.3476	0.0128		237.6672
Worker	0.0915	0.0482	0.6924	2.1800e-003	0.2459	1.3800e-003	0.2473	0.0652	1.2700e-003	0.0665		217.1095	217.1095	4.5000e-003		217.2221
Total	0.1065	0.6391	0.8142	4.4300e-003	0.3035	1.9700e-003	0.3055	0.0818	1.8400e-003	0.0836		454.4571	454.4571	0.0173		454.8893

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5233	11.7104	12.6111	0.0221		0.5145	0.5145		0.4968	0.4968	0.0000	2,001.7877	2,001.7877	0.3399		2,010.2858
Total	1.5233	11.7104	12.6111	0.0221		0.5145	0.5145		0.4968	0.4968	0.0000	2,001.7877	2,001.7877	0.3399		2,010.2858

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04701806 Farm Market Improvement Development - Riverside-South Coast County, Summer

3.4 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0150	0.5909	0.1218	2.2500e-003	0.0576	5.9000e-004	0.0582	0.0166	5.7000e-004	0.0172		237.3476	237.3476	0.0128		237.6672
Worker	0.0915	0.0482	0.6924	2.1800e-003	0.2459	1.3800e-003	0.2473	0.0652	1.2700e-003	0.0665		217.1095	217.1095	4.5000e-003		217.2221
Total	0.1065	0.6391	0.8142	4.4300e-003	0.3035	1.9700e-003	0.3055	0.0818	1.8400e-003	0.0836		454.4571	454.4571	0.0173		454.8893

3.5 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6446	6.2357	8.8024	0.0136		0.3084	0.3084		0.2846	0.2846		1,297.6880	1,297.6880	0.4114		1,307.9725
Paving	0.1651					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.8097	6.2357	8.8024	0.0136		0.3084	0.3084		0.2846	0.2846		1,297.6880	1,297.6880	0.4114		1,307.9725

Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

04701806 Farm Market Improvement Development - Riverside-South Coast County, Summer

3.5 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0541	0.0285	0.4091	1.2900e-003	0.1453	8.1000e-004	0.1461	0.0385	7.5000e-004	0.0393		128.2920	128.2920	2.6600e-003		128.3585
Total	0.0541	0.0285	0.4091	1.2900e-003	0.1453	8.1000e-004	0.1461	0.0385	7.5000e-004	0.0393		128.2920	128.2920	2.6600e-003		128.3585

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6446	6.2357	8.8024	0.0136		0.3084	0.3084		0.2846	0.2846	0.0000	1,297.6880	1,297.6880	0.4114		1,307.9725
Paving	0.1651					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.8097	6.2357	8.8024	0.0136		0.3084	0.3084		0.2846	0.2846	0.0000	1,297.6880	1,297.6880	0.4114		1,307.9725

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04701806 Farm Market Improvement Development - Riverside-South Coast County, Summer

3.5 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0541	0.0285	0.4091	1.2900e-003	0.1453	8.1000e-004	0.1461	0.0385	7.5000e-004	0.0393		128.2920	128.2920	2.6600e-003		128.3585
Total	0.0541	0.0285	0.4091	1.2900e-003	0.1453	8.1000e-004	0.1461	0.0385	7.5000e-004	0.0393		128.2920	128.2920	2.6600e-003		128.3585

3.6 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	6.5632					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	6.7548	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690

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04701806 Farm Market Improvement Development - Riverside-South Coast County, Summer

3.6 Architectural Coating - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0166	8.7700e-003	0.1259	4.0000e-004	0.0447	2.5000e-004	0.0450	0.0119	2.3000e-004	0.0121		39.4745	39.4745	8.2000e-004		39.4949
Total	0.0166	8.7700e-003	0.1259	4.0000e-004	0.0447	2.5000e-004	0.0450	0.0119	2.3000e-004	0.0121		39.4745	39.4745	8.2000e-004		39.4949

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	6.5632					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	6.7548	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690

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04701806 Farm Market Improvement Development - Riverside-South Coast County, Summer

3.6 Architectural Coating - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0166	8.7700e-003	0.1259	4.0000e-004	0.0447	2.5000e-004	0.0450	0.0119	2.3000e-004	0.0121		39.4745	39.4745	8.2000e-004		39.4949
Total	0.0166	8.7700e-003	0.1259	4.0000e-004	0.0447	2.5000e-004	0.0450	0.0119	2.3000e-004	0.0121		39.4745	39.4745	8.2000e-004		39.4949

3.6 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	6.5632					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	6.7439	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443

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3.6 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0157	7.9500e-003	0.1180	3.8000e-004	0.0447	2.5000e-004	0.0450	0.0119	2.3000e-004	0.0121		38.0653	38.0653	7.5000e-004		38.0839
Total	0.0157	7.9500e-003	0.1180	3.8000e-004	0.0447	2.5000e-004	0.0450	0.0119	2.3000e-004	0.0121		38.0653	38.0653	7.5000e-004		38.0839

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	6.5632					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
Total	6.7439	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443

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3.6 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0157	7.9500e-003	0.1180	3.8000e-004	0.0447	2.5000e-004	0.0450	0.0119	2.3000e-004	0.0121		38.0653	38.0653	7.5000e-004		38.0839
Total	0.0157	7.9500e-003	0.1180	3.8000e-004	0.0447	2.5000e-004	0.0450	0.0119	2.3000e-004	0.0121		38.0653	38.0653	7.5000e-004		38.0839

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Destination Accessibility

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.0609	12.5803	10.9120	0.0471	2.5517	0.0247	2.5765	0.6826	0.0230	0.7056		4,849.3035	4,849.3035	0.3579		4,858.2503
Unmitigated	2.0870	12.7409	11.7443	0.0511	2.9141	0.0269	2.9410	0.7795	0.0251	0.8045		5,259.6750	5,259.6750	0.3684		5,268.8838

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Convenience Market With Gas Pumps	1,376.08	1,376.08	1376.08	821,347	719,226
High Turnover (Sit Down Restaurant)	280.45	280.45	280.45	382,206	334,685
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Regional Shopping Center	75.50	75.50	75.50	163,295	142,992
Total	1,732.03	1,732.03	1,732.03	1,366,848	1,196,903

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Convenience Market With Gas	16.60	8.40	6.90	0.80	80.20	19.00	14	21	65
High Turnover (Sit Down)	16.60	8.40	6.90	8.50	72.50	19.00	37	20	43
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11

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4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Convenience Market With Gas Pumps	0.551648	0.035769	0.187848	0.110184	0.013450	0.004660	0.017552	0.070120	0.001413	0.001134	0.004476	0.000905	0.000840
High Turnover (Sit Down Restaurant)	0.551648	0.035769	0.187848	0.110184	0.013450	0.004660	0.017552	0.070120	0.001413	0.001134	0.004476	0.000905	0.000840
Other Non-Asphalt Surfaces	0.551648	0.035769	0.187848	0.110184	0.013450	0.004660	0.017552	0.070120	0.001413	0.001134	0.004476	0.000905	0.000840
Parking Lot	0.551648	0.035769	0.187848	0.110184	0.013450	0.004660	0.017552	0.070120	0.001413	0.001134	0.004476	0.000905	0.000840
Regional Shopping Center	0.551648	0.035769	0.187848	0.110184	0.013450	0.004660	0.017552	0.070120	0.001413	0.001134	0.004476	0.000905	0.000840

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0204	0.1855	0.1558	1.1100e-003		0.0141	0.0141		0.0141	0.0141		222.5777	222.5777	4.2700e-003	4.0800e-003	223.9004
NaturalGas Unmitigated	0.0204	0.1855	0.1558	1.1100e-003		0.0141	0.0141		0.0141	0.0141		222.5777	222.5777	4.2700e-003	4.0800e-003	223.9004

Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

04701806 Farm Market Improvement Development - Riverside-South Coast County, Summer

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Convenience Market With Gas Pumps	6.86923	7.0000e-005	6.7000e-004	5.7000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.8081	0.8081	2.0000e-005	1.0000e-005	0.8130
High Turnover (Sit Down Restaurant)	1872.88	0.0202	0.1836	0.1542	1.1000e-003		0.0140	0.0140		0.0140	0.0140		220.3384	220.3384	4.2200e-003	4.0400e-003	221.6478
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	12.1644	1.3000e-004	1.1900e-003	1.0000e-003	1.0000e-005		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005		1.4311	1.4311	3.0000e-005	3.0000e-005	1.4396
Total		0.0204	0.1855	0.1558	1.1100e-003		0.0141	0.0141		0.0141	0.0141		222.5777	222.5777	4.2700e-003	4.0800e-003	223.9004

Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

04701806 Farm Market Improvement Development - Riverside-South Coast County, Summer

5.2 Energy by Land Use - Natural Gas

Mitigated

	Natural Gas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Convenience Market With Gas Pumps	0.00686923	7.0000e-005	6.7000e-004	5.7000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.8081	0.8081	2.0000e-005	1.0000e-005	0.8130
High Turnover (Sit Down Restaurant)	1.87288	0.0202	0.1836	0.1542	1.1000e-003		0.0140	0.0140		0.0140	0.0140		220.3384	220.3384	4.2200e-003	4.0400e-003	221.6478
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0.0121644	1.3000e-004	1.1900e-003	1.0000e-003	1.0000e-005		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005		1.4311	1.4311	3.0000e-005	3.0000e-005	1.4396
Total		0.0204	0.1855	0.1558	1.1100e-003		0.0141	0.0141		0.0141	0.0141		222.5777	222.5777	4.2700e-003	4.0800e-003	223.9004

6.0 Area Detail

6.1 Mitigation Measures Area

Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

04701806 Farm Market Improvement Development - Riverside-South Coast County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.1470	5.0000e-005	5.0900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0109	0.0109	3.0000e-005		0.0117
Unmitigated	0.1470	5.0000e-005	5.0900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0109	0.0109	3.0000e-005		0.0117

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0180					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1286					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	4.7000e-004	5.0000e-005	5.0900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0109	0.0109	3.0000e-005		0.0117
Total	0.1470	5.0000e-005	5.0900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0109	0.0109	3.0000e-005		0.0117

04701806 Farm Market Improvement Development - Riverside-South Coast County, Summer

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0180					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1286					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	4.7000e-004	5.0000e-005	5.0900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0109	0.0109	3.0000e-005		0.0117
Total	0.1470	5.0000e-005	5.0900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0109	0.0109	3.0000e-005		0.0117

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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04701806 Farm Market Improvement Development - Riverside-South Coast County, Summer

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

04701806 Farm Market Improvement Development - Riverside-South Coast County, Winter

04701806 Farm Market Improvement Development
Riverside-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Regional Shopping Center	2.00	1000sqft	0.05	2,000.00	0
High Turnover (Sit Down Restaurant)	2.50	1000sqft	0.06	2,500.00	0
Convenience Market With Gas Pumps	8.00	Pump	0.03	1,129.40	0
Parking Lot	37.00	Space	0.63	27,443.00	0
Other Non-Asphalt Surfaces	0.48	Acre	0.48	20,908.80	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.4	Precipitation Freq (Days)	28
Climate Zone	10			Operational Year	2024
Utility Company	Southern California Edison				
CO2 Intensity (lb/MW hr)	702.44	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

04701806 Farm Market Improvement Development - Riverside-South Coast County, Winter

Project Characteristics -

Land Use - ~1.7 ac site - ~0.45 ac existing to remain = ~1.25 ac to be developed w/ 2TSF retail, 2.5TSF restaurant, 8 fuel pump gas station, ~50% (~0.63 ac) of site paving (includes 37 new parking spaces), & remainder landscaping (~0.48 ac).

Construction Phase - Per TIA opening year is 2024, used CalEEMod default timing. No demo, only site prep to remove some of the existing parking/landscaping areas.

Off-road Equipment -

Grading - Site anticipated to be balanced. Site prep of ~0.3 acres (~25% of site) to remove some of the existing landscaping/paving.

Trips and VMT - ~8 hauling trips needed during site prep to remove ~0.3 acres of existing paving/landscaping.

Vehicle Trips - Per TIA, 37.75 trips/TSF/day for retail, 112.18 trips/TSF/day for restaurant, & 172.01 trips/FP/day for gas station.

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation - Site is ~4.54 miles southeast of downtown portion of Moreno Valley.

Water Mitigation - Per CalGreen Standards, 20% indoor water reduction.

Waste Mitigation - AB 341 requires each jurisdiction in CA divert at least 75% of their waste away from landfills by 2020.

Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

04701806 Farm Market Improvement Development - Riverside-South Coast County, Winter

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	PhaseEndDate	11/13/2023	1/1/2024
tblConstructionPhase	PhaseEndDate	10/16/2023	12/4/2023
tblConstructionPhase	PhaseEndDate	1/9/2023	2/27/2023
tblConstructionPhase	PhaseEndDate	10/30/2023	12/18/2023
tblConstructionPhase	PhaseEndDate	1/3/2023	2/21/2023
tblConstructionPhase	PhaseStartDate	10/31/2023	12/19/2023
tblConstructionPhase	PhaseStartDate	1/10/2023	2/28/2023
tblConstructionPhase	PhaseStartDate	1/4/2023	2/22/2023
tblConstructionPhase	PhaseStartDate	10/17/2023	12/5/2023
tblConstructionPhase	PhaseStartDate	1/1/2023	2/18/2023
tblGrading	AcresOfGrading	1.00	0.30
tblLandUse	LandUseSquareFeet	14,800.00	27,443.00
tblLandUse	LotAcreage	0.33	0.63
tblTripsAndVMT	HaulingTripNumber	0.00	8.00
tblVehicleTrips	ST_TR	204.47	172.01
tblVehicleTrips	ST_TR	158.37	112.18
tblVehicleTrips	ST_TR	49.97	37.75
tblVehicleTrips	SU_TR	166.88	172.01
tblVehicleTrips	SU_TR	131.84	112.18
tblVehicleTrips	SU_TR	25.24	37.75
tblVehicleTrips	WD_TR	542.60	172.01
tblVehicleTrips	WD_TR	127.15	112.18
tblVehicleTrips	WD_TR	42.70	37.75

2.0 Emissions Summary

Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

04701806 Farm Market Improvement Development - Riverside-South Coast County, Winter

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	6.7712	12.9394	13.3090	0.0262	5.5878	0.5165	6.0966	2.9565	0.4987	3.4247	0.0000	2,425.0907	2,425.0907	0.5558	0.0000	2,434.0412
2024	6.7594	1.2270	1.9049	3.3100e-003	0.0447	0.0612	0.1059	0.0119	0.0611	0.0730	0.0000	315.5950	315.5950	0.0165	0.0000	316.0075
Maximum	6.7712	12.9394	13.3090	0.0262	5.5878	0.5165	6.0966	2.9565	0.4987	3.4247	0.0000	2,425.0907	2,425.0907	0.5558	0.0000	2,434.0412

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	6.7712	12.9394	13.3090	0.0262	2.2765	0.5165	2.7853	1.1792	0.4987	1.6474	0.0000	2,425.0907	2,425.0907	0.5558	0.0000	2,434.0412
2024	6.7594	1.2270	1.9049	3.3100e-003	0.0447	0.0612	0.1059	0.0119	0.0611	0.0730	0.0000	315.5950	315.5950	0.0165	0.0000	316.0075
Maximum	6.7712	12.9394	13.3090	0.0262	2.2765	0.5165	2.7853	1.1792	0.4987	1.6474	0.0000	2,425.0907	2,425.0907	0.5558	0.0000	2,434.0412

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	58.79	0.00	53.39	59.88	0.00	50.81	0.00	0.00	0.00	0.00	0.00	0.00

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04701806 Farm Market Improvement Development - Riverside-South Coast County, Winter

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.1470	5.0000e-005	5.0900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0109	0.0109	3.0000e-005		0.0117
Energy	0.0204	0.1855	0.1558	1.1100e-003		0.0141	0.0141		0.0141	0.0141		222.5777	222.5777	4.2700e-003	4.0800e-003	223.9004
Mobile	1.6880	12.4634	11.4143	0.0466	2.9141	0.0274	2.9415	0.7795	0.0255	0.8050		4,799.4368	4,799.4368	0.4021		4,809.4905
Total	1.8554	12.6489	11.5752	0.0477	2.9141	0.0416	2.9556	0.7795	0.0396	0.8191		5,022.0255	5,022.0255	0.4064	4.0800e-003	5,033.4025

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.1470	5.0000e-005	5.0900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0109	0.0109	3.0000e-005		0.0117
Energy	0.0204	0.1855	0.1558	1.1100e-003		0.0141	0.0141		0.0141	0.0141		222.5777	222.5777	4.2700e-003	4.0800e-003	223.9004
Mobile	1.6634	12.2949	10.7492	0.0429	2.5517	0.0252	2.5770	0.6826	0.0235	0.7060		4,417.5032	4,417.5032	0.3923		4,427.3115
Total	1.8308	12.4804	10.9101	0.0440	2.5517	0.0393	2.5911	0.6826	0.0376	0.7202		4,640.0918	4,640.0918	0.3966	4.0800e-003	4,651.2235

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04701806 Farm Market Improvement Development - Riverside-South Coast County, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	1.32	1.33	5.75	7.84	12.43	5.32	12.33	12.43	5.22	12.08	0.00	7.61	7.61	2.41	0.00	7.59

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	2/18/2023	2/21/2023	5	2	
2	Grading	Grading	2/22/2023	2/27/2023	5	4	
3	Building Construction	Building Construction	2/28/2023	12/4/2023	5	200	
4	Paving	Paving	12/5/2023	12/18/2023	5	10	
5	Architectural Coating	Architectural Coating	12/19/2023	1/1/2024	5	10	

Acres of Grading (Site Preparation Phase): 0.3

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 1.11

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 8,444; Non-Residential Outdoor: 2,815; Striped Parking Area: 2,901 (Architectural Coating – sqft)

OffRoad Equipment

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04701806 Farm Market Improvement Development - Riverside-South Coast County, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Site Preparation	Graders	1	8.00	187	0.41
Paving	Pavers	1	6.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	6.00	187	0.41
Paving	Paving Equipment	1	8.00	132	0.36
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Building Construction	Welders	3	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	3	8.00	0.00	8.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	22.00	9.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	4.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

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04701806 Farm Market Improvement Development - Riverside-South Coast County, Winter

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.4284	0.0000	5.4284	2.9136	0.0000	2.9136			0.0000			0.0000
Off-Road	1.1339	12.4250	6.6420	0.0172		0.5074	0.5074		0.4668	0.4668		1,666.057 3	1,666.057 3	0.5388		1,679.528 2
Total	1.1339	12.4250	6.6420	0.0172	5.4284	0.5074	5.9358	2.9136	0.4668	3.3804		1,666.057 3	1,666.057 3	0.5388		1,679.528 2

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04701806 Farm Market Improvement Development - Riverside-South Coast County, Winter

3.2 Site Preparation - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0134	0.4963	0.1100	2.8000e-003	0.0700	9.7000e-004	0.0709	0.0192	9.3000e-004	0.0201		297.9403	297.9403	0.0156		298.3293
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0328	0.0181	0.2026	7.1000e-004	0.0894	5.0000e-004	0.0899	0.0237	4.6000e-004	0.0242		70.8330	70.8330	1.4300e-003		70.8686
Total	0.0462	0.5144	0.3126	3.5100e-003	0.1594	1.4700e-003	0.1609	0.0429	1.3900e-003	0.0443		368.7732	368.7732	0.0170		369.1979

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.1171	0.0000	2.1171	1.1363	0.0000	1.1363			0.0000			0.0000
Off-Road	1.1339	12.4250	6.6420	0.0172		0.5074	0.5074		0.4668	0.4668	0.0000	1,666.0573	1,666.0573	0.5388		1,679.5282
Total	1.1339	12.4250	6.6420	0.0172	2.1171	0.5074	2.6245	1.1363	0.4668	1.6031	0.0000	1,666.0573	1,666.0573	0.5388		1,679.5282

Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

04701806 Farm Market Improvement Development - Riverside-South Coast County, Winter

3.2 Site Preparation - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0134	0.4963	0.1100	2.8000e-003	0.0700	9.7000e-004	0.0709	0.0192	9.3000e-004	0.0201		297.9403	297.9403	0.0156		298.3293
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0328	0.0181	0.2026	7.1000e-004	0.0894	5.0000e-004	0.0899	0.0237	4.6000e-004	0.0242		70.8330	70.8330	1.4300e-003		70.8686
Total	0.0462	0.5144	0.3126	3.5100e-003	0.1594	1.4700e-003	0.1609	0.0429	1.3900e-003	0.0443		368.7732	368.7732	0.0170		369.1979

3.3 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.9143	0.0000	4.9143	2.5256	0.0000	2.5256			0.0000			0.0000
Off-Road	0.9335	10.1789	5.5516	0.0141		0.4201	0.4201		0.3865	0.3865		1,364.7713	1,364.7713	0.4414		1,375.8062
Total	0.9335	10.1789	5.5516	0.0141	4.9143	0.4201	5.3343	2.5256	0.3865	2.9121		1,364.7713	1,364.7713	0.4414		1,375.8062

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04701806 Farm Market Improvement Development - Riverside-South Coast County, Winter

3.3 Grading - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0328	0.0181	0.2026	7.1000e-004	0.0894	5.0000e-004	0.0899	0.0237	4.6000e-004	0.0242		70.8330	70.8330	1.4300e-003		70.8686
Total	0.0328	0.0181	0.2026	7.1000e-004	0.0894	5.0000e-004	0.0899	0.0237	4.6000e-004	0.0242		70.8330	70.8330	1.4300e-003		70.8686

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.9166	0.0000	1.9166	0.9850	0.0000	0.9850			0.0000			0.0000
Off-Road	0.9335	10.1789	5.5516	0.0141		0.4201	0.4201		0.3865	0.3865	0.0000	1,364.7713	1,364.7713	0.4414		1,375.8062
Total	0.9335	10.1789	5.5516	0.0141	1.9166	0.4201	2.3367	0.9850	0.3865	1.3715	0.0000	1,364.7713	1,364.7713	0.4414		1,375.8062

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3.3 Grading - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0328	0.0181	0.2026	7.1000e-004	0.0894	5.0000e-004	0.0899	0.0237	4.6000e-004	0.0242		70.8330	70.8330	1.4300e-003		70.8686
Total	0.0328	0.0181	0.2026	7.1000e-004	0.0894	5.0000e-004	0.0899	0.0237	4.6000e-004	0.0242		70.8330	70.8330	1.4300e-003		70.8686

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5233	11.7104	12.6111	0.0221		0.5145	0.5145		0.4968	0.4968		2,001.7877	2,001.7877	0.3399		2,010.2858
Total	1.5233	11.7104	12.6111	0.0221		0.5145	0.5145		0.4968	0.4968		2,001.7877	2,001.7877	0.3399		2,010.2858

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3.4 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0159	0.5828	0.1407	2.1700e-003	0.0576	6.1000e-004	0.0582	0.0166	5.9000e-004	0.0172		228.5124	228.5124	0.0142		228.8667
Worker	0.0903	0.0498	0.5572	1.9500e-003	0.2459	1.3800e-003	0.2473	0.0652	1.2700e-003	0.0665		194.7907	194.7907	3.9200e-003		194.8888
Total	0.1062	0.6327	0.6979	4.1200e-003	0.3035	1.9900e-003	0.3055	0.0818	1.8600e-003	0.0837		423.3030	423.3030	0.0181		423.7555

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5233	11.7104	12.6111	0.0221		0.5145	0.5145		0.4968	0.4968	0.0000	2,001.7877	2,001.7877	0.3399		2,010.2858
Total	1.5233	11.7104	12.6111	0.0221		0.5145	0.5145		0.4968	0.4968	0.0000	2,001.7877	2,001.7877	0.3399		2,010.2858

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3.4 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0159	0.5828	0.1407	2.1700e-003	0.0576	6.1000e-004	0.0582	0.0166	5.9000e-004	0.0172		228.5124	228.5124	0.0142		228.8667
Worker	0.0903	0.0498	0.5572	1.9500e-003	0.2459	1.3800e-003	0.2473	0.0652	1.2700e-003	0.0665		194.7907	194.7907	3.9200e-003		194.8888
Total	0.1062	0.6327	0.6979	4.1200e-003	0.3035	1.9900e-003	0.3055	0.0818	1.8600e-003	0.0837		423.3030	423.3030	0.0181		423.7555

3.5 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6446	6.2357	8.8024	0.0136		0.3084	0.3084		0.2846	0.2846		1,297.6880	1,297.6880	0.4114		1,307.9725
Paving	0.1651					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.8097	6.2357	8.8024	0.0136		0.3084	0.3084		0.2846	0.2846		1,297.6880	1,297.6880	0.4114		1,307.9725

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04701806 Farm Market Improvement Development - Riverside-South Coast County, Winter

3.5 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0534	0.0294	0.3293	1.1500e-003	0.1453	8.1000e-004	0.1461	0.0385	7.5000e-004	0.0393		115.1036	115.1036	2.3200e-003		115.1616
Total	0.0534	0.0294	0.3293	1.1500e-003	0.1453	8.1000e-004	0.1461	0.0385	7.5000e-004	0.0393		115.1036	115.1036	2.3200e-003		115.1616

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6446	6.2357	8.8024	0.0136		0.3084	0.3084		0.2846	0.2846	0.0000	1,297.6880	1,297.6880	0.4114		1,307.9725
Paving	0.1651					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.8097	6.2357	8.8024	0.0136		0.3084	0.3084		0.2846	0.2846	0.0000	1,297.6880	1,297.6880	0.4114		1,307.9725

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04701806 Farm Market Improvement Development - Riverside-South Coast County, Winter

3.5 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0534	0.0294	0.3293	1.1500e-003	0.1453	8.1000e-004	0.1461	0.0385	7.5000e-004	0.0393		115.1036	115.1036	2.3200e-003		115.1616
Total	0.0534	0.0294	0.3293	1.1500e-003	0.1453	8.1000e-004	0.1461	0.0385	7.5000e-004	0.0393		115.1036	115.1036	2.3200e-003		115.1616

3.6 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	6.5632					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	6.7548	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690

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3.6 Architectural Coating - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0164	9.0600e-003	0.1013	3.6000e-004	0.0447	2.5000e-004	0.0450	0.0119	2.3000e-004	0.0121		35.4165	35.4165	7.1000e-004		35.4343
Total	0.0164	9.0600e-003	0.1013	3.6000e-004	0.0447	2.5000e-004	0.0450	0.0119	2.3000e-004	0.0121		35.4165	35.4165	7.1000e-004		35.4343

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	6.5632					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	6.7548	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690

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3.6 Architectural Coating - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0164	9.0600e-003	0.1013	3.6000e-004	0.0447	2.5000e-004	0.0450	0.0119	2.3000e-004	0.0121		35.4165	35.4165	7.1000e-004		35.4343
Total	0.0164	9.0600e-003	0.1013	3.6000e-004	0.0447	2.5000e-004	0.0450	0.0119	2.3000e-004	0.0121		35.4165	35.4165	7.1000e-004		35.4343

3.6 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	6.5632					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	6.7439	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443

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3.6 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0155	8.2100e-003	0.0948	3.4000e-004	0.0447	2.5000e-004	0.0450	0.0119	2.3000e-004	0.0121		34.1469	34.1469	6.5000e-004		34.1632
Total	0.0155	8.2100e-003	0.0948	3.4000e-004	0.0447	2.5000e-004	0.0450	0.0119	2.3000e-004	0.0121		34.1469	34.1469	6.5000e-004		34.1632

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	6.5632					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
Total	6.7439	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443

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3.6 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0155	8.2100e-003	0.0948	3.4000e-004	0.0447	2.5000e-004	0.0450	0.0119	2.3000e-004	0.0121		34.1469	34.1469	6.5000e-004		34.1632
Total	0.0155	8.2100e-003	0.0948	3.4000e-004	0.0447	2.5000e-004	0.0450	0.0119	2.3000e-004	0.0121		34.1469	34.1469	6.5000e-004		34.1632

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Destination Accessibility

Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

04701806 Farm Market Improvement Development - Riverside-South Coast County, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.6634	12.2949	10.7492	0.0429	2.5517	0.0252	2.5770	0.6826	0.0235	0.7060		4,417.503 2	4,417.503 2	0.3923		4,427.3115
Unmitigated	1.6880	12.4634	11.4143	0.0466	2.9141	0.0274	2.9415	0.7795	0.0255	0.8050		4,799.436 8	4,799.436 8	0.4021		4,809.490 5

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Convenience Market With Gas Pumps	1,376.08	1,376.08	1376.08	821,347	719,226
High Turnover (Sit Down Restaurant)	280.45	280.45	280.45	382,206	334,685
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Regional Shopping Center	75.50	75.50	75.50	163,295	142,992
Total	1,732.03	1,732.03	1,732.03	1,366,848	1,196,903

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Convenience Market With Gas	16.60	8.40	6.90	0.80	80.20	19.00	14	21	65
High Turnover (Sit Down)	16.60	8.40	6.90	8.50	72.50	19.00	37	20	43
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11

Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

04701806 Farm Market Improvement Development - Riverside-South Coast County, Winter

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Convenience Market With Gas Pumps	0.551648	0.035769	0.187848	0.110184	0.013450	0.004660	0.017552	0.070120	0.001413	0.001134	0.004476	0.000905	0.000840
High Turnover (Sit Down Restaurant)	0.551648	0.035769	0.187848	0.110184	0.013450	0.004660	0.017552	0.070120	0.001413	0.001134	0.004476	0.000905	0.000840
Other Non-Asphalt Surfaces	0.551648	0.035769	0.187848	0.110184	0.013450	0.004660	0.017552	0.070120	0.001413	0.001134	0.004476	0.000905	0.000840
Parking Lot	0.551648	0.035769	0.187848	0.110184	0.013450	0.004660	0.017552	0.070120	0.001413	0.001134	0.004476	0.000905	0.000840
Regional Shopping Center	0.551648	0.035769	0.187848	0.110184	0.013450	0.004660	0.017552	0.070120	0.001413	0.001134	0.004476	0.000905	0.000840

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0204	0.1855	0.1558	1.1100e-003		0.0141	0.0141		0.0141	0.0141		222.5777	222.5777	4.2700e-003	4.0800e-003	223.9004
NaturalGas Unmitigated	0.0204	0.1855	0.1558	1.1100e-003		0.0141	0.0141		0.0141	0.0141		222.5777	222.5777	4.2700e-003	4.0800e-003	223.9004

Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

04701806 Farm Market Improvement Development - Riverside-South Coast County, Winter

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Convenience Market With Gas Pumps	6.86923	7.0000e-005	6.7000e-004	5.7000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.8081	0.8081	2.0000e-005	1.0000e-005	0.8130
High Turnover (Sit Down Restaurant)	1872.88	0.0202	0.1836	0.1542	1.1000e-003		0.0140	0.0140		0.0140	0.0140		220.3384	220.3384	4.2200e-003	4.0400e-003	221.6478
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	12.1644	1.3000e-004	1.1900e-003	1.0000e-003	1.0000e-005		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005		1.4311	1.4311	3.0000e-005	3.0000e-005	1.4396
Total		0.0204	0.1855	0.1558	1.1100e-003		0.0141	0.0141		0.0141	0.0141		222.5777	222.5777	4.2700e-003	4.0800e-003	223.9004

Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

04701806 Farm Market Improvement Development - Riverside-South Coast County, Winter

5.2 Energy by Land Use - Natural Gas

Mitigated

	Natural Gas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Convenience Market With Gas Pumps	0.00686923	7.0000e-005	6.7000e-004	5.7000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.8081	0.8081	2.0000e-005	1.0000e-005	0.8130
High Turnover (Sit Down Restaurant)	1.87288	0.0202	0.1836	0.1542	1.1000e-003		0.0140	0.0140		0.0140	0.0140		220.3384	220.3384	4.2200e-003	4.0400e-003	221.6478
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0.0121644	1.3000e-004	1.1900e-003	1.0000e-003	1.0000e-005		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005		1.4311	1.4311	3.0000e-005	3.0000e-005	1.4396
Total		0.0204	0.1855	0.1558	1.1100e-003		0.0141	0.0141		0.0141	0.0141		222.5777	222.5777	4.2700e-003	4.0800e-003	223.9004

6.0 Area Detail

6.1 Mitigation Measures Area

Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

04701806 Farm Market Improvement Development - Riverside-South Coast County, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.1470	5.0000e-005	5.0900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0109	0.0109	3.0000e-005		0.0117
Unmitigated	0.1470	5.0000e-005	5.0900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0109	0.0109	3.0000e-005		0.0117

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0180					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1286					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	4.7000e-004	5.0000e-005	5.0900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0109	0.0109	3.0000e-005		0.0117
Total	0.1470	5.0000e-005	5.0900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0109	0.0109	3.0000e-005		0.0117

04701806 Farm Market Improvement Development - Riverside-South Coast County, Winter

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0180					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1286					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	4.7000e-004	5.0000e-005	5.0900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0109	0.0109	3.0000e-005		0.0117
Total	0.1470	5.0000e-005	5.0900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0109	0.0109	3.0000e-005		0.0117

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

04701806 Farm Market Improvement Development - Riverside-South Coast County, Winter

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

Appendix B:

CalEEMod Annual Emission Output

04701806 Farm Market Improvement Development - Riverside-South Coast County, Annual

04701806 Farm Market Improvement Development
Riverside-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Regional Shopping Center	2.00	1000sqft	0.05	2,000.00	0
High Turnover (Sit Down Restaurant)	2.50	1000sqft	0.06	2,500.00	0
Convenience Market With Gas Pumps	8.00	Pump	0.03	1,129.40	0
Parking Lot	37.00	Space	0.63	27,443.00	0
Other Non-Asphalt Surfaces	0.48	Acre	0.48	20,908.80	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.4	Precipitation Freq (Days)	28
Climate Zone	10			Operational Year	2024
Utility Company	Southern California Edison				
CO2 Intensity (lb/MW hr)	702.44	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

04701806 Farm Market Improvement Development - Riverside-South Coast County, Annual

Project Characteristics -

Land Use - ~1.7 ac site - ~0.45 ac existing to remain = ~1.25 ac to be developed w/ 2TSF retail, 2.5TSF restaurant, 8 fuel pump gas station, ~50% (~0.63 ac) of site paving (includes 37 new parking spaces), & remainder landscaping (~0.48 ac).

Construction Phase - Per TIA opening year is 2024, used CalEEMod default timing. No demo, only site prep to remove some of the existing parking/landscaping areas.

Off-road Equipment -

Grading - Site anticipated to be balanced. Site prep of ~0.3 acres (~25% of site) to remove some of the existing landscaping/paving.

Trips and VMT - ~8 hauling trips needed during site prep to remove ~0.3 acres of existing paving/landscaping.

Vehicle Trips - Per TIA, 37.75 trips/TSF/day for retail, 112.18 trips/TSF/day for restaurant, & 172.01 trips/FP/day for gas station.

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation - Site is ~4.54 miles southeast of downtown portion of Moreno Valley.

Water Mitigation - Per CalGreen Standards, 20% indoor water reduction.

Waste Mitigation - AB 341 requires each jurisdiction in CA divert at least 75% of their waste away from landfills by 2020.

Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

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Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	PhaseEndDate	11/13/2023	1/1/2024
tblConstructionPhase	PhaseEndDate	10/16/2023	12/4/2023
tblConstructionPhase	PhaseEndDate	1/9/2023	2/27/2023
tblConstructionPhase	PhaseEndDate	10/30/2023	12/18/2023
tblConstructionPhase	PhaseEndDate	1/3/2023	2/21/2023
tblConstructionPhase	PhaseStartDate	10/31/2023	12/19/2023
tblConstructionPhase	PhaseStartDate	1/10/2023	2/28/2023
tblConstructionPhase	PhaseStartDate	1/4/2023	2/22/2023
tblConstructionPhase	PhaseStartDate	10/17/2023	12/5/2023
tblConstructionPhase	PhaseStartDate	1/1/2023	2/18/2023
tblGrading	AcresOfGrading	1.00	0.30
tblLandUse	LandUseSquareFeet	14,800.00	27,443.00
tblLandUse	LotAcreage	0.33	0.63
tblTripsAndVMT	HaulingTripNumber	0.00	8.00
tblVehicleTrips	ST_TR	204.47	172.01
tblVehicleTrips	ST_TR	158.37	112.18
tblVehicleTrips	ST_TR	49.97	37.75
tblVehicleTrips	SU_TR	166.88	172.01
tblVehicleTrips	SU_TR	131.84	112.18
tblVehicleTrips	SU_TR	25.24	37.75
tblVehicleTrips	WD_TR	542.60	172.01
tblVehicleTrips	WD_TR	127.15	112.18
tblVehicleTrips	WD_TR	42.70	37.75

2.0 Emissions Summary

Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

04701806 Farm Market Improvement Development - Riverside-South Coast County, Annual

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.2000	1.3059	1.4059	2.7700e-003	0.0464	0.0549	0.1012	0.0164	0.0529	0.0692	0.0000	233.0990	233.0990	0.0357	0.0000	233.9909
2024	3.3800e-003	6.1000e-004	9.6000e-004	0.0000	2.0000e-005	3.0000e-005	5.0000e-005	1.0000e-005	3.0000e-005	4.0000e-005	0.0000	0.1436	0.1436	1.0000e-005	0.0000	0.1437
Maximum	0.2000	1.3059	1.4059	2.7700e-003	0.0464	0.0549	0.1012	0.0164	0.0529	0.0692	0.0000	233.0990	233.0990	0.0357	0.0000	233.9909

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.2000	1.3059	1.4059	2.7700e-003	0.0371	0.0549	0.0919	0.0115	0.0529	0.0644	0.0000	233.0987	233.0987	0.0357	0.0000	233.9906
2024	3.3800e-003	6.1000e-004	9.6000e-004	0.0000	2.0000e-005	3.0000e-005	5.0000e-005	1.0000e-005	3.0000e-005	4.0000e-005	0.0000	0.1436	0.1436	1.0000e-005	0.0000	0.1437
Maximum	0.2000	1.3059	1.4059	2.7700e-003	0.0371	0.0549	0.0919	0.0115	0.0529	0.0644	0.0000	233.0987	233.0987	0.0357	0.0000	233.9906

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	20.07	0.00	9.19	29.69	0.00	7.02	0.00	0.00	0.00	0.00	0.00	0.00

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Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2023	3-31-2023	0.2038	0.2038
2	4-1-2023	6-30-2023	0.4543	0.4543
3	7-1-2023	9-30-2023	0.4593	0.4593
4	10-1-2023	12-31-2023	0.3975	0.3975
5	1-1-2024	3-31-2024	0.0029	0.0029
		Highest	0.4593	0.4593

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0268	1.0000e-005	6.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.2400e-003	1.2400e-003	0.0000	0.0000	1.3200e-003
Energy	3.7200e-003	0.0339	0.0284	2.0000e-004		2.5700e-003	2.5700e-003		2.5700e-003	2.5700e-003	0.0000	90.3243	90.3243	2.9100e-003	1.1300e-003	90.7346
Mobile	0.3069	2.3072	2.0733	8.8000e-003	0.5217	4.9400e-003	0.5266	0.1397	4.5900e-003	0.1443	0.0000	822.0914	822.0914	0.0631	0.0000	823.6681
Waste						0.0000	0.0000		0.0000	0.0000	6.4653	0.0000	6.4653	0.3821	0.0000	16.0174
Water						0.0000	0.0000		0.0000	0.0000	0.3143	4.7843	5.0986	0.0325	8.0000e-004	6.1498
Total	0.3374	2.3411	2.1024	9.0000e-003	0.5217	7.5100e-003	0.5292	0.1397	7.1600e-003	0.1469	6.7795	917.2012	923.9808	0.4806	1.9300e-003	936.5712

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2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0268	1.0000e-005	6.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.2400e-003	1.2400e-003	0.0000	0.0000	1.3200e-003
Energy	3.7200e-003	0.0339	0.0284	2.0000e-004		2.5700e-003	2.5700e-003		2.5700e-003	2.5700e-003	0.0000	90.3243	90.3243	2.9100e-003	1.1300e-003	90.7346
Mobile	0.3024	2.2761	1.9455	8.1100e-003	0.4568	4.5300e-003	0.4614	0.1224	4.2100e-003	0.1266	0.0000	758.0536	758.0536	0.0614	0.0000	759.5893
Waste						0.0000	0.0000		0.0000	0.0000	1.6163	0.0000	1.6163	0.0955	0.0000	4.0044
Water						0.0000	0.0000		0.0000	0.0000	0.2514	3.9623	4.2137	0.0260	6.4000e-004	5.0552
Total	0.3329	2.3100	1.9746	8.3100e-003	0.4568	7.1000e-003	0.4639	0.1224	6.7800e-003	0.1292	1.8678	852.3414	854.2092	0.1859	1.7700e-003	859.3847

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	1.35	1.33	6.08	7.67	12.43	5.46	12.33	12.43	5.31	12.08	72.45	7.07	7.55	61.33	8.29	8.24

3.0 Construction Detail

Construction Phase

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Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	2/18/2023	2/21/2023	5	2	
2	Grading	Grading	2/22/2023	2/27/2023	5	4	
3	Building Construction	Building Construction	2/28/2023	12/4/2023	5	200	
4	Paving	Paving	12/5/2023	12/18/2023	5	10	
5	Architectural Coating	Architectural Coating	12/19/2023	1/1/2024	5	10	

Acres of Grading (Site Preparation Phase): 0.3

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 1.11

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 8,444; Non-Residential Outdoor: 2,815; Striped Parking Area: 2,901 (Architectural Coating – sqft)

OffRoad Equipment

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Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Site Preparation	Graders	1	8.00	187	0.41
Paving	Pavers	1	6.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	6.00	187	0.41
Paving	Paving Equipment	1	8.00	132	0.36
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Building Construction	Welders	3	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	3	8.00	0.00	8.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	22.00	9.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	4.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

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3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.4300e-003	0.0000	5.4300e-003	2.9100e-003	0.0000	2.9100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.1300e-003	0.0124	6.6400e-003	2.0000e-005		5.1000e-004	5.1000e-004		4.7000e-004	4.7000e-004	0.0000	1.5114	1.5114	4.9000e-004	0.0000	1.5236
Total	1.1300e-003	0.0124	6.6400e-003	2.0000e-005	5.4300e-003	5.1000e-004	5.9400e-003	2.9100e-003	4.7000e-004	3.3800e-003	0.0000	1.5114	1.5114	4.9000e-004	0.0000	1.5236

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3.2 Site Preparation - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-005	5.0000e-004	1.0000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.2743	0.2743	1.0000e-005	0.0000	0.2747
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	2.1000e-004	0.0000	9.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0659	0.0659	0.0000	0.0000	0.0660
Total	4.0000e-005	5.2000e-004	3.1000e-004	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.3402	0.3402	1.0000e-005	0.0000	0.3406

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.1200e-003	0.0000	2.1200e-003	1.1400e-003	0.0000	1.1400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.1300e-003	0.0124	6.6400e-003	2.0000e-005		5.1000e-004	5.1000e-004		4.7000e-004	4.7000e-004	0.0000	1.5114	1.5114	4.9000e-004	0.0000	1.5236
Total	1.1300e-003	0.0124	6.6400e-003	2.0000e-005	2.1200e-003	5.1000e-004	2.6300e-003	1.1400e-003	4.7000e-004	1.6100e-003	0.0000	1.5114	1.5114	4.9000e-004	0.0000	1.5236

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3.2 Site Preparation - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-005	5.0000e-004	1.0000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.2743	0.2743	1.0000e-005	0.0000	0.2747
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	2.1000e-004	0.0000	9.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0659	0.0659	0.0000	0.0000	0.0660
Total	4.0000e-005	5.2000e-004	3.1000e-004	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.3402	0.3402	1.0000e-005	0.0000	0.3406

3.3 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					9.8300e-003	0.0000	9.8300e-003	5.0500e-003	0.0000	5.0500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.8700e-003	0.0204	0.0111	3.0000e-005		8.4000e-004	8.4000e-004		7.7000e-004	7.7000e-004	0.0000	2.4762	2.4762	8.0000e-004	0.0000	2.4962
Total	1.8700e-003	0.0204	0.0111	3.0000e-005	9.8300e-003	8.4000e-004	8.0107	5.0500e-003	7.7000e-004	5.8200e-003	0.0000	2.4762	2.4762	8.0000e-004	0.0000	2.4962

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3.3 Grading - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-005	4.0000e-005	4.3000e-004	0.0000	1.8000e-004	0.0000	1.8000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1318	0.1318	0.0000	0.0000	0.1319
Total	6.0000e-005	4.0000e-005	4.3000e-004	0.0000	1.8000e-004	0.0000	1.8000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1318	0.1318	0.0000	0.0000	0.1319

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					3.8300e-003	0.0000	3.8300e-003	1.9700e-003	0.0000	1.9700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.8700e-003	0.0204	0.0111	3.0000e-005		8.4000e-004	8.4000e-004		7.7000e-004	7.7000e-004	0.0000	2.4762	2.4762	8.0000e-004	0.0000	2.4962
Total	1.8700e-003	0.0204	0.0111	3.0000e-005	3.8300e-003	8.4000e-004	4.6700e-003	1.9700e-003	7.7000e-004	2.7400e-003	0.0000	2.4762	2.4762	8.0000e-004	0.0000	2.4962

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3.3 Grading - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-005	4.0000e-005	4.3000e-004	0.0000	1.8000e-004	0.0000	1.8000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1318	0.1318	0.0000	0.0000	0.1319
Total	6.0000e-005	4.0000e-005	4.3000e-004	0.0000	1.8000e-004	0.0000	1.8000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1318	0.1318	0.0000	0.0000	0.1319

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1523	1.1710	1.2611	2.2100e-003		0.0515	0.0515		0.0497	0.0497	0.0000	181.5991	181.5991	0.0308	0.0000	182.3701
Total	0.1523	1.1710	1.2611	2.2100e-003		0.0515	0.0515		0.0497	0.0497	0.0000	181.5991	181.5991	0.0308	0.0000	182.3701

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3.4 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.5300e-003	0.0591	0.0131	2.2000e-004	5.6800e-003	6.0000e-005	5.7400e-003	1.6400e-003	6.0000e-005	1.7000e-003	0.0000	21.1952	21.1952	1.2100e-003	0.0000	21.2255
Worker	8.3000e-003	5.1500e-003	0.0588	2.0000e-004	0.0242	1.4000e-004	0.0243	6.4200e-003	1.3000e-004	6.5500e-003	0.0000	18.1260	18.1260	3.7000e-004	0.0000	18.1352
Total	9.8300e-003	0.0643	0.0719	4.2000e-004	0.0299	2.0000e-004	0.0301	8.0600e-003	1.9000e-004	8.2500e-003	0.0000	39.3211	39.3211	1.5800e-003	0.0000	39.3607

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1523	1.1710	1.2611	2.2100e-003		0.0515	0.0515		0.0497	0.0497	0.0000	181.5989	181.5989	0.0308	0.0000	182.3698
Total	0.1523	1.1710	1.2611	2.2100e-003		0.0515	0.0515		0.0497	0.0497	0.0000	181.5989	181.5989	0.0308	0.0000	182.3698

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3.4 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.5300e-003	0.0591	0.0131	2.2000e-004	5.6800e-003	6.0000e-005	5.7400e-003	1.6400e-003	6.0000e-005	1.7000e-003	0.0000	21.1952	21.1952	1.2100e-003	0.0000	21.2255
Worker	8.3000e-003	5.1500e-003	0.0588	2.0000e-004	0.0242	1.4000e-004	0.0243	6.4200e-003	1.3000e-004	6.5500e-003	0.0000	18.1260	18.1260	3.7000e-004	0.0000	18.1352
Total	9.8300e-003	0.0643	0.0719	4.2000e-004	0.0299	2.0000e-004	0.0301	8.0600e-003	1.9000e-004	8.2500e-003	0.0000	39.3211	39.3211	1.5800e-003	0.0000	39.3607

3.5 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.2200e-003	0.0312	0.0440	7.0000e-005		1.5400e-003	1.5400e-003		1.4200e-003	1.4200e-003	0.0000	5.8862	5.8862	1.8700e-003	0.0000	5.9329
Paving	8.3000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	4.0500e-003	0.0312	0.0440	7.0000e-005		1.5400e-003	1.5400e-003		1.4200e-003	1.4200e-003	0.0000	5.8862	5.8862	1.8700e-003	0.0000	5.9329

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3.5 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.5000e-004	1.5000e-004	1.7400e-003	1.0000e-005	7.1000e-004	0.0000	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.5355	0.5355	1.0000e-005	0.0000	0.5358
Total	2.5000e-004	1.5000e-004	1.7400e-003	1.0000e-005	7.1000e-004	0.0000	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.5355	0.5355	1.0000e-005	0.0000	0.5358

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.2200e-003	0.0312	0.0440	7.0000e-005		1.5400e-003	1.5400e-003		1.4200e-003	1.4200e-003	0.0000	5.8862	5.8862	1.8700e-003	0.0000	5.9329
Paving	8.3000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	4.0500e-003	0.0312	0.0440	7.0000e-005		1.5400e-003	1.5400e-003		1.4200e-003	1.4200e-003	0.0000	5.8862	5.8862	1.8700e-003	0.0000	5.9329

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3.5 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.5000e-004	1.5000e-004	1.7400e-003	1.0000e-005	7.1000e-004	0.0000	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.5355	0.5355	1.0000e-005	0.0000	0.5358
Total	2.5000e-004	1.5000e-004	1.7400e-003	1.0000e-005	7.1000e-004	0.0000	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.5355	0.5355	1.0000e-005	0.0000	0.5358

3.6 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0295					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.6000e-004	5.8600e-003	8.1500e-003	1.0000e-005		3.2000e-004	3.2000e-004		3.2000e-004	3.2000e-004	0.0000	1.1490	1.1490	7.0000e-005	0.0000	1.1507
Total	0.0304	5.8600e-003	8.1500e-003	1.0000e-005		3.2000e-004	3.2000e-004		3.2000e-004	3.2000e-004	0.0000	1.1490	1.1490	7.0000e-005	0.0000	1.1507

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3.6 Architectural Coating - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.0000e-005	4.0000e-005	4.8000e-004	0.0000	2.0000e-004	0.0000	2.0000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1483	0.1483	0.0000	0.0000	0.1484
Total	7.0000e-005	4.0000e-005	4.8000e-004	0.0000	2.0000e-004	0.0000	2.0000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1483	0.1483	0.0000	0.0000	0.1484

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0295					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.6000e-004	5.8600e-003	8.1500e-003	1.0000e-005		3.2000e-004	3.2000e-004		3.2000e-004	3.2000e-004	0.0000	1.1490	1.1490	7.0000e-005	0.0000	1.1507
Total	0.0304	5.8600e-003	8.1500e-003	1.0000e-005		3.2000e-004	3.2000e-004		3.2000e-004	3.2000e-004	0.0000	1.1490	1.1490	7.0000e-005	0.0000	1.1507

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3.6 Architectural Coating - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.0000e-005	4.0000e-005	4.8000e-004	0.0000	2.0000e-004	0.0000	2.0000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1483	0.1483	0.0000	0.0000	0.1484
Total	7.0000e-005	4.0000e-005	4.8000e-004	0.0000	2.0000e-004	0.0000	2.0000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1483	0.1483	0.0000	0.0000	0.1484

3.6 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	3.2800e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.0000e-005	6.1000e-004	9.1000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.1277	0.1277	1.0000e-005	0.0000	0.1278
Total	3.3700e-003	6.1000e-004	9.1000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.1277	0.1277	1.0000e-005	0.0000	0.1278

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3.6 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-005	0.0000	5.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0159	0.0159	0.0000	0.0000	0.0159
Total	1.0000e-005	0.0000	5.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0159	0.0159	0.0000	0.0000	0.0159

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	3.2800e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.0000e-005	6.1000e-004	9.1000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.1277	0.1277	1.0000e-005	0.0000	0.1278
Total	3.3700e-003	6.1000e-004	9.1000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.1277	0.1277	1.0000e-005	0.0000	0.1278

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3.6 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-005	0.0000	5.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0159	0.0159	0.0000	0.0000	0.0159
Total	1.0000e-005	0.0000	5.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0159	0.0159	0.0000	0.0000	0.0159

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Destination Accessibility

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.3024	2.2761	1.9455	8.1100e-003	0.4568	4.5300e-003	0.4614	0.1224	4.2100e-003	0.1266	0.0000	758.0536	758.0536	0.0614	0.0000	759.5893
Unmitigated	0.3069	2.3072	2.0733	8.8000e-003	0.5217	4.9400e-003	0.5266	0.1397	4.5900e-003	0.1443	0.0000	822.0914	822.0914	0.0631	0.0000	823.6681

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Convenience Market With Gas Pumps	1,376.08	1,376.08	1376.08	821,347	719,226
High Turnover (Sit Down Restaurant)	280.45	280.45	280.45	382,206	334,685
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Regional Shopping Center	75.50	75.50	75.50	163,295	142,992
Total	1,732.03	1,732.03	1,732.03	1,366,848	1,196,903

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Convenience Market With Gas	16.60	8.40	6.90	0.80	80.20	19.00	14	21	65
High Turnover (Sit Down)	16.60	8.40	6.90	8.50	72.50	19.00	37	20	43
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11

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4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Convenience Market With Gas Pumps	0.551648	0.035769	0.187848	0.110184	0.013450	0.004660	0.017552	0.070120	0.001413	0.001134	0.004476	0.000905	0.000840
High Turnover (Sit Down Restaurant)	0.551648	0.035769	0.187848	0.110184	0.013450	0.004660	0.017552	0.070120	0.001413	0.001134	0.004476	0.000905	0.000840
Other Non-Asphalt Surfaces	0.551648	0.035769	0.187848	0.110184	0.013450	0.004660	0.017552	0.070120	0.001413	0.001134	0.004476	0.000905	0.000840
Parking Lot	0.551648	0.035769	0.187848	0.110184	0.013450	0.004660	0.017552	0.070120	0.001413	0.001134	0.004476	0.000905	0.000840
Regional Shopping Center	0.551648	0.035769	0.187848	0.110184	0.013450	0.004660	0.017552	0.070120	0.001413	0.001134	0.004476	0.000905	0.000840

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	53.4740	53.4740	2.2100e-003	4.6000e-004	53.6653
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	53.4740	53.4740	2.2100e-003	4.6000e-004	53.6653
NaturalGas Mitigated	3.7200e-003	0.0339	0.0284	2.0000e-004		2.5700e-003	2.5700e-003		2.5700e-003	2.5700e-003	0.0000	36.8502	36.8502	7.1000e-004	6.8000e-004	37.0692
NaturalGas Unmitigated	3.7200e-003	0.0339	0.0284	2.0000e-004		2.5700e-003	2.5700e-003		2.5700e-003	2.5700e-003	0.0000	36.8502	36.8502	7.1000e-004	6.8000e-004	37.0692

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5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Convenience Market With Gas Pumps	2507.27	1.0000e-005	1.2000e-004	1.0000e-004	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	0.1338	0.1338	0.0000	0.0000	0.1346
High Turnover (Sit Down Restaurant)	683600	3.6900e-003	0.0335	0.0282	2.0000e-004		2.5500e-003	2.5500e-003		2.5500e-003	2.5500e-003	0.0000	36.4795	36.4795	7.0000e-004	6.7000e-004	36.6963
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	4440	2.0000e-005	2.2000e-004	1.8000e-004	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.2369	0.2369	0.0000	0.0000	0.2383
Total		3.7200e-003	0.0339	0.0284	2.0000e-004		2.5800e-003	2.5800e-003		2.5800e-003	2.5800e-003	0.0000	36.8502	36.8502	7.0000e-004	6.7000e-004	37.0692

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5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Convenience Market With Gas Pumps	2507.27	1.0000e-005	1.2000e-004	1.0000e-004	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	0.1338	0.1338	0.0000	0.0000	0.1346
High Turnover (Sit Down Restaurant)	683600	3.6900e-003	0.0335	0.0282	2.0000e-004		2.5500e-003	2.5500e-003		2.5500e-003	2.5500e-003	0.0000	36.4795	36.4795	7.0000e-004	6.7000e-004	36.6963
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	4440	2.0000e-005	2.2000e-004	1.8000e-004	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.2369	0.2369	0.0000	0.0000	0.2383
Total		3.7200e-003	0.0339	0.0284	2.0000e-004		2.5800e-003	2.5800e-003		2.5800e-003	2.5800e-003	0.0000	36.8502	36.8502	7.0000e-004	6.7000e-004	37.0692

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5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Convenience Market With Gas Pumps	14264.3	4.5449	1.9000e-004	4.0000e-005	4.5612
High Turnover (Sit Down Restaurant)	118700	37.8204	1.5600e-003	3.2000e-004	37.9557
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	9605.05	3.0604	1.3000e-004	3.0000e-005	3.0713
Regional Shopping Center	25260	8.0484	3.3000e-004	7.0000e-005	8.0772
Total		53.4740	2.2100e-003	4.6000e-004	53.6653

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5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Convenience Market With Gas Pumps	14264.3	4.5449	1.9000e-004	4.0000e-005	4.5612
High Turnover (Sit Down Restaurant)	118700	37.8204	1.5600e-003	3.2000e-004	37.9557
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	9605.05	3.0604	1.3000e-004	3.0000e-005	3.0713
Regional Shopping Center	25260	8.0484	3.3000e-004	7.0000e-005	8.0772
Total		53.4740	2.2100e-003	4.6000e-004	53.6653

6.0 Area Detail

6.1 Mitigation Measures Area

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0268	1.0000e-005	6.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.2400e-003	1.2400e-003	0.0000	0.0000	1.3200e-003
Unmitigated	0.0268	1.0000e-005	6.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.2400e-003	1.2400e-003	0.0000	0.0000	1.3200e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	3.2800e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0235					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	6.0000e-005	1.0000e-005	6.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.2400e-003	1.2400e-003	0.0000	0.0000	1.3200e-003
Total	0.0268	1.0000e-005	6.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.2400e-003	1.2400e-003	0.0000	0.0000	1.3200e-003

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6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	3.2800e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0235					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	6.0000e-005	1.0000e-005	6.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.2400e-003	1.2400e-003	0.0000	0.0000	1.3200e-003
Total	0.0268	1.0000e-005	6.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.2400e-003	1.2400e-003	0.0000	0.0000	1.3200e-003

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

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	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	4.2137	0.0260	6.4000e-004	5.0552
Unmitigated	5.0986	0.0325	8.0000e-004	6.1498

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Convenience Market With Gas Pumps	0.0836574 / 0.0512739	0.5551	2.7500e-003	7.0000e-005	0.6443
High Turnover (Sit Down Restaurant)	0.758834 / 0.0484362	3.5604	0.0249	6.1000e-004	4.3645
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0.148145 / 0.0907986	0.9830	4.8700e-003	1.2000e-004	1.1410
Total		5.0986	0.0325	8.0000e-004	6.1498

04701806 Farm Market Improvement Development - Riverside-South Coast County, Annual

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Convenience Market With Gas Pumps	0.0669259 / 0.0512739	0.4804	2.2000e-003	6.0000e-005	0.5519
High Turnover (Sit Down Restaurant)	0.607067 / 0.0484362	2.8826	0.0199	4.9000e-004	3.5260
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0.118516 / 0.0907986	0.8507	3.9000e-003	1.0000e-004	0.9773
Total		4.2138	0.0260	6.5000e-004	5.0552

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

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Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	1.6163	0.0955	0.0000	4.0044
Unmitigated	6.4653	0.3821	0.0000	16.0174

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
High Turnover (Sit Down Restaurant)	29.75	6.0390	0.3569	0.0000	14.9613
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	2.1	0.4263	0.0252	0.0000	1.0561
Total		6.4653	0.3821	0.0000	16.0174

04701806 Farm Market Improvement Development - Riverside-South Coast County, Annual

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
High Turnover (Sit Down Restaurant)	7.4375	1.5098	0.0892	0.0000	3.7403
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0.525	0.1066	6.3000e-003	0.0000	0.2640
Total		1.6163	0.0955	0.0000	4.0044

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

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Equipment Type	Number
----------------	--------

11.0 Vegetation

Appendix C:

Screening Tables for Gasoline Dispensing Facilities & CARB 2005 Air Quality and
Land Use Handbook Table 1-1

SCAQMD PERMIT APPLICATION PACKAGE "N"
 Tables Effective for Applications Deemed Complete On or After October 1, 2017

Table 12.1A – Screening Tables for Gasoline Dispensing Facilities

Underground Storage Tank (UST)

Station Abbr.	Location	Downwind Distance (meters)							
		25	50	75	100	200	300	500	1000
AZUS	Azusa	2.884	1.040	0.550	0.340	0.093	0.045	0.018	0.006
BNAP	Banning	4.208	1.703	0.940	0.603	0.186	0.093	0.039	0.013
CELA	Central L.A.	2.484	0.876	0.455	0.287	0.085	0.041	0.017	0.005
			1.075	0.558	0.347	0.103	0.051	0.021	0.007
FONT	Fontana	3.306	1.254	0.677	0.423	0.124	0.060	0.025	0.007
MSVJ	Mission Viejo	2.721	0.981	0.515	0.319	0.094	0.047	0.018	0.006
PICO	Pico Rivera	2.629	0.956	0.509	0.316	0.091	0.044	0.018	0.005
RDLA	Redlands	3.562	1.325	0.691	0.418	0.113	0.055	0.024	0.007
UPLA	Upland	3.108	1.133	0.609	0.384	0.111	0.054	0.022	0.007
KBUR	Burbank Airport	3.097	1.198	0.655	0.410	0.125	0.062	0.026	0.008
KCNO	Chino Airport.	4.084	1.609	0.870	0.549	0.166	0.082	0.033	0.010
KCQT	USC/Downtown L.A.	3.382	1.244	0.656	0.407	0.110	0.052	0.021	0.007
KFUL	Fullerton Airport	2.726	1.027	0.553	0.348	0.104	0.052	0.021	0.007
KHHR	Hawthorne Airport	3.225	1.197	0.640	0.405	0.123	0.061	0.025	0.007
KLAX	Los Angeles Int'l Airport	4.456	1.830	1.010	0.648	0.204	0.102	0.044	0.013
KLGB	Long Beach Airport	3.417	1.394	0.764	0.488	0.151	0.076	0.033	0.010
KONT	Ontario Airport	4.834	2.006	1.111	0.710	0.222	0.112	0.047	0.015
KPSP	Palm Springs Airport	3.363	1.352	0.736	0.467	0.144	0.073	0.031	0.010
KRAL	Riverside Airport	4.141	1.678	0.922	0.588	0.177	0.088	0.038	0.013
KSMO	Santa Monica Airport	3.444	1.336	0.731	0.462	0.139	0.068	0.028	0.008
KSNA	John Wayne Int'l Airport	4.041	1.605	0.870	0.549	0.164	0.079	0.032	0.010
KTRM	Desert Hot Springs Airport	3.820	1.553	0.848	0.540	0.163	0.082	0.035	0.010
KVNY	Van Nuys Airport	2.909	1.132	0.608	0.378	0.111	0.055	0.022	0.007

Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

SCAQMD PERMIT APPLICATION PACKAGE “N”
 Tables Effective for Applications Deemed Complete On or After October 1, 2017

Table 12.2A – Screening Tables for Gasoline Dispensing Facilities

Aboveground Storage Tank (AST)

Station Abbr.	Location	Downwind Distance (meters)							
		25	50	75	100	200	300	500	1000
AZUS	Azusa	4.447	1.603	0.827	0.496	0.114	0.050	0.020	0.006
BNAP	Banning	5.469	2.176	1.185	0.748	0.210	0.101	0.042	0.013
CELA	Central L.A.	3.610	1.258	0.641	0.392	0.100	0.046	0.019	0.006
ELSI	Lake Elsinore	4.056	1.458	0.748	0.452	0.119	0.057	0.024	0.008
FONT	Fontana	4.812	1.787	0.940	0.569	0.145	0.067	0.027	0.008
MSVJ	Mission Viejo	3.600	1.276	0.650	0.395	0.108	0.052	0.021	0.007
PERI	Perris	4.639	1.733	0.904	0.558	0.144	0.069	0.029	0.009
PICO	Pico Rivera	3.720	1.342	0.699	0.421	0.106	0.049	0.019	0.006
RDLA	Redlands	5.809	2.218	1.154	0.685	0.132	0.062	0.026	0.008
UPLA	Upland	4.693	1.677	0.871	0.532	0.130	0.060	0.025	0.008
KBUR	Burbank Airport	3.940	1.493	0.808	0.493	0.139	0.069	0.028	0.008
KCNO	Chino Airport.	4.971	1.950	1.047	0.658	0.188	0.091	0.037	0.011
KCQT	USC/Downtown L.A.	5.393	1.959	1.002	0.604	0.133	0.058	0.024	0.007
KFUL	Fullerton Airport	3.614	1.336	0.699	0.429	0.118	0.058	0.024	0.007
KHHR	Hawthorne Airport	4.415	1.593	0.837	0.511	0.140	0.067	0.027	0.008
KLAX	Los Angeles Int'l Airport	5.624	2.316	1.257	0.794	0.227	0.111	0.047	0.015
KLGB	Long Beach Airport	4.450	1.829	0.993	0.621	0.172	0.083	0.035	0.011
KONT	Ontario Airport	5.990	2.494	1.370	0.862	0.249	0.121	0.051	0.017
KPSP	Palm Springs Airport	4.148	1.691	0.915	0.573	0.163	0.080	0.034	0.010
KRAL	Riverside Airport	5.770	2.318	1.244	0.776	0.202	0.096	0.041	0.013
KSMO	Santa Monica Airport	4.771	1.829	0.977	0.596	0.159	0.074	0.031	0.009
KSNA	John Wayne Int'l Airport	5.072	2.017	1.085	0.674	0.186	0.088	0.036	0.010
KTRM	Desert Hot Springs Airport	4.681	1.917	1.040	0.660	0.183	0.091	0.039	0.012
KVNY	Van Nuys Airport	3.673	1.428	0.760	0.467	0.127	0.060	0.025	0.008

Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Table 1-1
Recommendations on Siting New Sensitive Land Uses
Such As Residences, Schools, Daycare Centers, Playgrounds, or Medical
Facilities*

Source Category	Advisory Recommendations
Freeways and High-Traffic Roads	<ul style="list-style-type: none"> • Avoid siting new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day.
Distribution Centers	<ul style="list-style-type: none"> • Avoid siting new sensitive land uses within 1,000 feet of a distribution center (that accommodates more than 100 trucks per day, more than 40 trucks with operating transport refrigeration units (TRUs) per day, or where TRU unit operations exceed 300 hours per week). • Take into account the configuration of existing distribution centers and avoid locating residences and other new sensitive land uses near entry and exit points.
Rail Yards	<ul style="list-style-type: none"> • Avoid siting new sensitive land uses within 1,000 feet of a major service and maintenance rail yard. • Within one mile of a rail yard, consider possible siting limitations and mitigation approaches.
Ports	<ul style="list-style-type: none"> • Avoid siting of new sensitive land uses immediately downwind of ports in the most heavily impacted zones. Consult local air districts or the ARB on the status of pending analyses of health risks.
Refineries	<ul style="list-style-type: none"> • Avoid siting new sensitive land uses immediately downwind of petroleum refineries. Consult with local air districts and other local agencies to determine an appropriate separation.
Chrome Platers	<ul style="list-style-type: none"> • Avoid siting new sensitive land uses within 1,000 feet of a chrome plater.
Dry Cleaners Using Perchloro-ethylene	<ul style="list-style-type: none"> • Avoid siting new sensitive land uses within 300 feet of any dry cleaning operation. For operations with two or more machines, provide 500 feet. For operations with 3 or more machines, consult with the local air district. • Do not site new sensitive land uses in the same building with perc dry cleaning operations.
Gasoline Dispensing Facilities	<ul style="list-style-type: none"> • Avoid siting new sensitive land uses within 300 feet of a large gas station (defined as a facility with a throughput of 3.6 million gallons per year or greater). A 50 foot separation is recommended for typical gas dispensing facilities.

***Notes:**

- These recommendations are advisory. Land use agencies have to balance other considerations, including housing and transportation needs, economic development priorities, and other quality of life issues.

- Recommendations are based primarily on data showing that the air pollution exposures addressed here (i.e., localized) can be reduced as much as 80% with the recommended separation.
- The relative risk for these categories varies greatly (see Table 1-2). To determine the actual risk near a particular facility, a site-specific analysis would be required. Risk from diesel PM will decrease over time as cleaner technology phases in.
- These recommendations are designed to fill a gap where information about existing facilities may not be readily available and are not designed to substitute for more specific information if it exists. The recommended distances take into account other factors in addition to available health risk data (see individual category descriptions).
- Site-specific project design improvements may help reduce air pollution exposures and should also be considered when siting new sensitive land uses.
- This table does not imply that mixed residential and commercial development in general is incompatible. Rather it focuses on known problems like dry cleaners using perchloroethylene that can be addressed with reasonable preventative actions.
- A summary of the basis for the distance recommendations can be found in Table 1-2.

Appendix B - Biological Resources and MSHCP Compliance



September 3, 2020

HEADY DESIGN GROUP

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SUBJECT: Biological Resources Assessment and Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) Consistency Analysis for the Redlands Alessandro Commercial Plaza Located in the City of Moreno Valley, Riverside County, California

Introduction

This report contains the findings of ELMT Consulting’s (ELMT) Biological Resources Assessment and Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) consistency analysis for the Redlands Alessandro Commercial Plaza located in the City of Moreno Valley, Riverside County, California (Project). The report was prepared to document baseline conditions and assess the potential for special-status¹ plant and wildlife species to occur within the proposed project site that could pose a constraint to implementation of the proposed project. Special attention was given to the suitability of the onsite habitat to support special-status species identified by the California Department of Fish and Wildlife’s (CDFW) California Natural Diversity Database (CNDDDB) and other electronic databases as potentially occurring in the general vicinity of the project. Additionally, the report also addresses resources protected under the Migratory Bird Treaty Act (MBTA), federal Clean Water Act (CWA) regulated by the U.S. Army Corps of Engineers (USACE) and Regional Water Quality Control Board (RWQCB) respectively; and Section 1602 of the California Fish and Game Code (FGC) administered by CDFW.

The City of Moreno Valley is a signatory to the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP). The MSHCP requires that a project comply with the MSHCP rules and regulations set forth in the MSHCP. Therefore, the Project site was also evaluated for consistency with the MSHCP.

Project Location

The project site is generally located east of Interstate 215, south of State Route 60, west of Gilman Springs Road, and north of Mount Russel in the City of Moreno Valley, Riverside County, California. The project site is depicted on the *Sunnymead* quadrangle of the United State Geological Survey’s (USGS) 7.5-minute

¹ As used in this report, “special-status” refers to plant and wildlife species that are federally, State, and MSHCP listed, proposed, or candidates; plant species that have been designated with a California Native Plant Society Rare Plant Rank; wildlife species that are designated by the CDFW as fully protected, species of special concern, or watch list species; and specially protected natural vegetation communities as designated by the CDFW.

topographic map within Section 13 of Township 3 South, Range 3 West. Specifically, the project site is located on the southeast corner of the intersection of Redlands Boulevard and Alessandro Boulevard within Assessor Parcel Numbers (APNs) 478-430-029, -030, and -031. Refer to Exhibits 1- 3 in Attachment A.

Project Description

The project (PEN19-0057, Master Plot Plan for a multi-tenant building and gas station) proposes the construction of a 1,920 square foot commercial building, a 2,580 square foot restaurant, and a gas station with eight fueling stations adjacent to an existing market that will be incorporated into the overall project. The site is currently zoned as Village Commercial (VC) and classified as Commercial Land Use in the City of Moreno Valley General Plan Land Use Map. The project site is currently partially occupied by an existing market which will remain and is incorporated into the project site plan. The proposed project land use is permitted in the zone and does not require a zone change or General Plan amendment. Refer to Attachment B, *Site Plan*.

Methodology

Prior to conducting the field investigation, species and habitat information was gathered from the reports related to the specific project and relevant databases for the *Sunnymead* USGS quadrangle to determine which species and/or habitats would be expected to occur onsite. These sources include:

- California Native Plant Society Electronic Inventory (CNPSEI) database;
- California Natural Diversity Database (CNDDDB) *Rarefind 5*;
- CNDDDB Biogeographic Information and Observation System (BIOS);
- Environmental Protection Agency (EPA) Water Program “My Waters” data layers
- Google Earth Pro historic aerial imagery (1996-2018);
- Stephen’s Kangaroo Rat Habitat Conservation Plan
- United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS), Web Soil Survey;
- United States Fish and Wildlife Service (USFWS) Critical Habitat designations for Threatened and Endangered Species;
- USFWS National Wetlands Inventory (NWI);
- Western Riverside County Regional Conservation Authority (RCA) MSHCP Information Map; and
- 2006 Burrowing Owl Survey Instructions for the Western Riverside Multiple Species Habitat Conservation Plan Area.

The literature review provided a baseline from which to inventory the biological resources potentially occurring on the project site. The CNDDDB database was used, in conjunction with ArcGIS software, to locate the nearest recorded occurrences of special-status species and determine the distance from the project.

Field Investigation

Following the literature review, biologist Jacob H. Lloyd Davies inventoried and evaluated the condition of the habitat within the project site on August 5, 2020. Plant communities identified on aerial photographs during the literature review were verified by walking meandering transects through the plant communities and along boundaries between plant communities.

All plant and wildlife species observed, as well as dominant plant species within each plant community, were recorded. Plant species observed during the field survey were identified by visual characteristics and morphology in the field. Unusual and less familiar plant species were photographed during the field survey and identified in the laboratory using taxonomical guides. Wildlife detections were made through observation of scat, trails, tracks, burrows, nests, and/or visual and aural observation. In addition, site characteristics such as soil condition, topography, hydrology, anthropogenic disturbances, indicator species, condition of onsite plant communities, and presence of potential jurisdictional drainage and/or wetland features were noted.

No limitations significantly affected the results and conclusions given herein. Surveys were conducted during the appropriate season to observe the target species, in good weather conditions, by a qualified biologist who followed all pertinent protocols.

Existing Site Condition

The project site is comprised of three parcels for a total of 1.7 acres and completely surrounded by existing residential and commercial development. The site currently supports an existing market and parking lot on its western half, and undeveloped/vacant land on its eastern half.

Topography and Soils

Elevation on the project site ranges from approximately 1,594 to 1,604 feet above mean sea level, is generally flat with no areas of significant topographic relief, and slopes gently away from the center. Based on the NRCS USDA Web Soil Survey, the project site is underlain by San Emigdio loam (0 to 2 percent slopes) and San Emigdio loam (2 to 8 percent slopes). Soils onsite have been mechanically disturbed and heavily compacted from previous anthropogenic disturbances (i.e., grading activities, weed abatement activities, and onsite and surrounding development). Refer to Exhibit 4, *Soils*, in Attachment A.

Vegetation

Due to existing and historical land uses, no native plant communities or natural communities of special concern were observed on or immediately adjacent to the project site. The project site consists of segregated portions of developed and undeveloped, vacant land that have been subject to a variety of anthropogenic disturbances and is surrounded by existing development on all sides. The project site does not support any vegetation communities, but rather supports land cover types that would be classified as developed and disturbed (refer to Exhibit 5, *Vegetation*, in Attachment A). Refer to Attachment C, *Site Photographs*, for representative photographs of the project site. No native plant communities will be impacted from implementation of the proposed project.

The disturbed portions of the project site were dominated by early successional and non-native weedy plant species as a result of weed abatement activities and adjacent development. This area is composed primarily of non-native forbs such as puncture vine (*Tribulus terrestris*) and silverleaf nightshade (*Solanum elaeagnifolium*). Other common species observed in the disturbed areas include doveweed (*Croton setiger*), flax-leaved horseweed (*Erigeron bonariensis*), tumbleweed (*Amaranthus album*), Russian thistle (*Salsola tragus*), and spurge (*Euphorbia* sp.). The developed portion of the project site supported exclusively non-native ornamental and landscaped plant species.

Wildlife

The project site provides a limited amount of habitat for a few reptile species adapted to a high degree of anthropogenic disturbances. Bird species detected during the field survey included house finch (*Haemorhous mexicanus*), and mourning dove (*Zenaida macroura*). Common side-blotched lizard (*Uta stansburiana elegans*) was the only reptilian species observed during the field investigation. No fish, amphibian, or mammal species were observed during the field investigation.

Nesting Birds and Raptors

No active nests or birds displaying nesting behavior were observed onsite during the field survey. Although heavily disturbed, the project has the potential to provide minimal foraging and nesting habitat for year-round and seasonal avian residents, as well as migrating songbirds that could occur in the area that area adapted to disturbed areas and urban environments. Additionally, the disturbed areas on the project site have the potential to support ground-nesting birds such as killdeer (*Charadrius vociferus*). The ornamental trees on and within 500 feet of the project site also have the potential to provide avian nesting opportunities.

Migratory Corridors and Linkages

Habitat linkages provide connections between larger habitat areas that are separated by development. Wildlife corridors are similar to linkages but provide specific opportunities for animals to disperse or migrate between areas. A corridor can be defined as a linear landscape feature of sufficient width to allow animal movement between two comparatively undisturbed habitat fragments. Adequate cover is essential for a corridor to function as a wildlife movement area. It is possible for a habitat corridor to be adequate for one species yet still inadequate for others. Wildlife corridors are features that allow for the dispersal, seasonal migration, breeding, and foraging of a variety of wildlife species. Additionally, open space can provide a buffer against both human disturbance and natural fluctuations in resources.

The project site has not been identified as occurring in a wildlife corridor or linkage. The proposed project will be confined to existing areas that have been heavily disturbed or developed, are isolated from regional wildlife corridors and linkages, and there are no riparian corridors, creeks, or useful patches of stepping stone habitat (natural areas) within or connecting the improvement areas to a recognized wildlife corridor or linkage. As such, implementation of the proposed project is not expected to impact wildlife movement opportunities. Therefore, impacts to wildlife corridors or linkages are not expected to occur.

Jurisdictional Areas

There are three key agencies that regulate activities within inland streams, wetlands, and riparian areas in California. The USACE Regulatory Branch regulates discharge of dredge or fill materials into “waters of the United States” pursuant to Section 404 of the Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act. Of the State agencies, the CDFW regulates alterations to streambed and bank under Fish and Wildlife Code Sections 1600 et seq., and the RWQCB regulates discharges into surface waters pursuant to Section 401 of the CWA and the California Porter-Cologne Water Quality Control Act.

No jurisdictional drainage and/or wetland features were observed on the project site during the field investigation. Further, no blue-line streams have been recorded on the project site. Therefore, development of the project will not result in impacts to Corps, Regional Board, or CDFW jurisdiction and regulatory approvals will not be required.

Special-Status Biological Resources

The CNDDDB was queried for reported locations of special-status plant and wildlife species as well as natural communities of special concern in the *Sunnymead* USGS 7.5-minute quadrangle. Special-status plant and wildlife species were evaluated for their potential to occur within the project site based on habitat requirements, availability, and quality of suitable habitat, and known distributions. Species determined to have the potential to occur within the general vicinity are provided in Attachment D, *Potentially Occurring Special-Status Biological Resources*.

Special-Status Plants

According to the CNDDDB and CNPS, fourteen (14) special-status plant species have been recorded in the *Sunnymead* quadrangle (refer to Attachment D). The project site consists of heavily disturbed and developed land that have been subject to a variety of anthropogenic disturbances from grading/disking activities and activities associated with surrounding development. These disturbances have resulted in the project site being dominated by early successional and non-native vegetation, which has reduced, if not eliminated, the ability of the project site to provide suitable habitat for special-status plant species. Although the field investigation was not conducted during the blooming season for the majority of the special-status plant species known to occur in the general vicinity of the project site, based on habitat requirements for specific special-status plant species and the availability and quality of habitats needed by each species, it was determined that the project site does not provide suitable habitat for special-status species known to occur in the area and are presumed absent.

Special-Status Wildlife

According to the CNDDDB, sixty-eight (68) special-status wildlife species have been reported in the *Sunnymead* quadrangle (refer to Attachment D). No special-status wildlife species were observed onsite during the habitat assessment. Based on habitat requirements for specific species and the availability and quality of onsite habitats, it was determined that the proposed project site has a low potential to provide minimal foraging opportunities for Cooper’s hawk (*Accipiter cooperii*) and sharp-shinned hawk (*Accipiter striatus*). Further it was determined that the project site does not provide suitable habitat for any of the other

special-status wildlife species known to occur in the area since the project site has been heavily disturbed from onsite disturbances and surrounding development.

Special-Status Plant Communities

The CNDDDB lists one (1) special-status habitats as being identified within the *Sunnymead* quadrangle: Southern Sycamore Alder Riparian Woodland, which does not occur within the project site. No CDFW special-status plant communities occur within the boundaries of the project site.

Critical Habitat

Under the federal Endangered Species Act, “Critical Habitat” is designated at the time of listing of a species or within one year of listing. Critical Habitat refers to specific areas within the geographical range of a species at the time it is listed that include the physical or biological features that are essential to the survival and eventual recovery of that species. Maintenance of these physical and biological features requires special management considerations or protection, regardless of whether individuals or the species are present or not. All federal agencies are required to consult with the United States Fish and Wildlife Service (USFWS) regarding activities they authorize, fund, or permit which may affect a federally listed species or its designated Critical Habitat. The purpose of the consultation is to ensure that projects will not jeopardize the continued existence of the listed species or adversely modify or destroy its designated Critical Habitat. The designation of Critical Habitat does not affect private landowners, unless a project they are proposing is on federal lands, uses federal funds, or requires federal authorization or permits (e.g., funding from the Federal Highways Administration or a CWA Permit from the Corps). If there is a federal nexus, then the federal agency that is responsible for providing the funding or permit would consult with the USFWS.

The project site is not located with federally designated Critical Habitat (refer to Exhibit 6, *Critical Habitat*, in Attachment A). The closest federally designated Critical Habitat is located approximately 3.4 miles south of the project site for spreading navarretia (*Navarretia fossalis*) and 4.6 miles south of the project site for three-leaved brodiaea (*Brodiaea filifolia*). Therefore, the loss or adverse modification of Critical Habitat will not occur as a result of the proposed project and consultation with the USFWS will not be required for implementation of the proposed project.

Stephen’s Kangaroo Rat Habitat Conservation Plan

Separate from the consistency review against the policies of the MSHCP, Riverside County established a boundary in 1996 for protecting the Stephens’ kangaroo rat (*Dipodomys stephensi*), a federally endangered and state threatened species. The Stephens’ kangaroo rat is protected under the Stephens’ Kangaroo Rat Habitat Conservation Plan (County Ordinance No. 663.10; SKR HCP). As described in the MSHCP Implementation Agreement, a Section 10(a) Permit, and California Fish and Game Code Section 2081 Management Authorization were issued to the Riverside County Habitat Conservation Agency (RCHCA) for the Long-Term SKR HCP and was approved by the USFWS and CDFW in August 1990 (RCHCA 1996). Relevant terms of the SKR HCP have been incorporated into the MSHCP and its Implementation Agreement. The SKR HCP will continue to be implemented as a separate HCP; however, to provide the greatest conservation for the largest number of Covered Species, the Core Reserves established by the SKR HCP are managed as part of the MSHCP Conservation Area consistent with the SKR HCP. Actions shall not be taken as part of the implementation of the SKR HCP that will significantly affect other Covered

Species. Take of Stephens' kangaroo rat outside of the boundaries but within the MSHCP area is authorized under the MSHCP and the associated permits.

The project site is located within the Mitigation Fee Area of the SKR HCP. Therefore, the applicant will be required to pay the SKR HCP Mitigation Fee prior to development of the project site.

Western Riverside County MSHCP

The project site is located within the Reche Canyon/Badlands Area Plan of the MSHCP, but is not located within any Criteria Cells or MSHCP Conservation Areas (refer to Exhibit 7, *MSHCP Criteria Area*, in Attachment A). Additionally, the project site is not located within any of the following designated species survey areas as identified by the Riverside Conservation Authority Information Map:

- Amphibian Not in an amphibian survey area
- Owls Not in an owl survey area
- Criteria Area Species Not in a criteria area species survey area
- Mammals Not in a mammal survey area
- Narrow Endemic Plants Not in a narrow endemic plant survey area

Since the City of Moreno Valley is a permittee under the MSHCP and, while the project is not specifically identified as a Covered Activity under Section 7.1 of the MSHCP, public and private development that are outside of Criteria Areas and Public/Quasi-Public (PQP) Lands are permitted under the MSHCP, subject to consistency with MSHCP policies that apply to area outside of Criteria Areas. As such, to achieve coverage, the project must be consistent with the following policies of the MSHCP:

Riparian/Riverine Areas and Vernal Pools

The MSHCP requires that an assessment be completed if impacts to riparian/riverine areas and vernal pools could occur from construction of the proposed project. According to the MSHCP, the documentation for the assessment shall include mapping and a description of the functions and values of the mapped areas with respect to the species listed in Section 6.1.2 of the MSHCP, *Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools*.

Riparian/Riverine Areas

As identified in Section 6.1.2 of the MSHCP, *Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools*, riparian/riverine areas are defined as areas dominated by trees, shrubs, persistent emergent plants, or emergent mosses and lichens which occur close to or are dependent upon nearby freshwater, or areas with freshwater flowing during all or a portion of the year. Conservation of these areas is intended to protect habitat that is essential to a number of listed or special-status water-dependent fish, amphibian, avian, and plant species. If impacts to riparian/riverine habitat cannot be avoided, a Determination of Biologically Equivalent or Superior Preservation (DBESP) must be developed to address the replacement of lost functions of habitats in regards to the listed species. This assessment is independent from considerations given to "waters of the U.S." and "waters of the State" under the CWA and the California Fish and Game Code.

No riparian/riverine features were observed within the project site during the field investigation. Therefore, development of the proposed project will not result in impacts to riparian/riverine habitats and a DBESP will not be required for the loss of riparian/riverine habitat from development of the proposed project.

Vernal Pools and Fairy Shrimp Habitat

One of the factors for determining the suitability of the habitat for fairy shrimp would be demonstrable evidence of seasonal ponding in an area of topographic depression that is not subject to flowing waters. These astatic pools are typically characterized as vernal pools. More specifically, vernal pools are seasonal wetlands that occur in depression areas without a continual source of water. They have wetland indicators of all 3 parameters (soils, vegetation, and hydrology) during the wetter portion of the growing season but normally lack wetland indicators of hydrology and/or vegetation during the drier portion of the growing season. Obligate hydrophytes and facultative wetlands plant species are normally dominant during the wetter portion of the growing season. The determination that an area exhibits vernal pool characteristics and the definition of the watershed supporting vernal pool hydrology is made on a case-by-case basis. Such determinations should consider the length of time the areas exhibit upland and wetland characteristics and the manner in which the area fits into the overall ecological system as a wetland. The seasonal hydrology of vernal pools provides for a unique environment, which supports plants and invertebrates specifically adapted to a regime of winter inundation, followed by an extended period when the pool soils are dry.

Vernal pools are seasonally inundated, ponded areas that only form in regions where specialized soil and climatic conditions exist. During fall and winter rains typical of Mediterranean climates, water collects in shallow depressions where downward percolation of water is prevented by the presence of a hard pan or clay pan layer (duripan) below the soil surface. Later in the spring when rains decrease and the weather warms, the water evaporates, and the pools generally disappear by May. The shallow depressions remain relatively dry until late fall and early winter with the advent of greater precipitation and cooler temperatures. Vernal pools provide unusual "flood and drought" habitat conditions to which certain plant and wildlife species have specifically adapted as well as invertebrate species such as fairy shrimp.

The MSHCP lists two general classes of soils known to be associated with listed and special-status plant species: clay soils and Traver-Domino Willow association soils. The specific clay soils known to be associated with listed and special-status species within the MSHCP plan area include Bosanko, Auld, Altamont, and Porterville series soils, whereas Traver-Domino Willows association includes saline-alkali soils largely located along floodplain areas of the San Jacinto River and Salt Creek. Without the appropriate soils to create the impermeable restrictive layer, none of the special-status plant or wildlife species associated with vernal pools can occur on the project site. None of these soils have been documented within the project site.

A review of recent and historic aerial photographs (1996-2018) of the project site did not provide visual evidence of an astatic or vernal pool conditions within the project site. No ponding was observed during the field investigation, further supporting the fact that the drainage patterns currently occurring on the project site do not follow hydrologic regime needed for vernal pools. From this review of historic aerial photographs and observations during the field investigations, it can be concluded that there is no indication of vernal pools or suitable fairy shrimp habitat occurring within the proposed project site.

Narrow Endemic Plant Species

In accordance with Section 6.1.3 of the MSHCP, *Protection of Narrow Endemic Plant Species*, additional surveys may be needed to gather information to determine the presence/absence of these species to ensure that appropriate conservation of these species occurs. Based on the RCA MSHCP Information Map query, it was determined that the project site is not located within the designated survey area for Narrow Endemic Plant Species.

Additional Survey Needs and Procedures

In accordance with Section 6.3.2 of the MSHCP, *Additional Survey Needs and Procedures*, additional surveys may be needed for certain species in order to achieve coverage for these species. The query of the RCA MSHCP Information Map determined that the project site is not located within any designated survey areas for the species listed under Section 6.3.2 of the MSHCP.

Urban/Wildlands Interface Guidelines

Section 6.1.4 of the MSHCP, *Guidelines Pertaining to Urban/Wildlands Interface*, is intended to address indirect effects associated with development in proximity to MSHCP Conservation Areas. The Urban/Wildlife Interface Guidelines are intended to ensure that indirect project-related impacts to the MSHCP Conservation Area, including drainage, toxics, lighting, noise, invasive plant species, barriers, and grading/land development, are avoided or minimized.

The project site is not located within or immediately adjacent to any Criteria Cells, corridors, or linkages. Therefore, the urban/Wildlands Interface Guidelines do not apply to this project.

Conclusion and Recommendations

Based on the literature review and field survey, implementation of the project will have no significant impacts on federally, State, or MSHCP listed species known to occur in the general vicinity of the project site. Additionally, the project will have no effect on designated Critical Habitat because none exists within the area.

There are no jurisdictional drainages onsite.

The project site is not located within or adjacent to any criteria cell. No riverine/riparian resources or vernal pools were found onsite, and is therefore consistent with Section 6.1.2 of the MSHCP. The project site is not located within any special species areas for amphibians, mammals, burrowing owl, narrow endemic plants, or criteria area plants. The site is designated as urbanized and developed. Therefore, the project will not impact MSHCP sensitive resources.

The project site is located within the Mitigation Fee Area of the SKR HCP. Therefore, the applicant will be required to pay the SKR HCP Mitigation Fee prior to development of the project site

The project site has the potential to support suitable habitat for foraging and nesting birds, which are protected by the MBTA and FGC. To avoid potential impacts to nesting birds, the following is recommended.

- If construction occurs between February 1st and August 31st, a pre-construction clearance survey for nesting birds should be conducted within ten (10) days of the start of any vegetation removal or ground disturbing activities to ensure that no nesting birds will be disturbed during construction. The biologist conducting the clearance survey should document a negative survey with a brief letter report indicating that no impacts to active avian nests will occur. If an active avian nest is discovered during the pre-construction clearance survey, construction activities should stay outside of a no-disturbance buffer. The size of the no-disturbance buffer will be determined by the wildlife biologist and will depend on the level of noise and/or surrounding anthropogenic disturbances, line of sight between the nest and the construction activity, type and duration of construction activity, ambient noise, species habituation, and topographical barriers. These factors will be evaluated on a case-by-case basis when developing buffer distances. Limits of construction to avoid an active nest will be established in the field with flagging, fencing, or other appropriate barriers; and construction personnel will be instructed on the sensitivity of nest areas. A biological monitor should be present to delineate the boundaries of the buffer area and to monitor the active nest to ensure that nesting behavior is not adversely affected by the construction activity. Once the young have fledged and left the nest, or the nest otherwise becomes inactive under natural conditions, construction activities within the buffer area can occur.

With completion of the recommendations provided in this report and payment of the MSHCP mitigation fee, implementation of the proposed project will be fully consistent with the Western Riverside County MSHCP.

Please do not hesitate to contact Travis McGill at (909) 816-1646 or travismcgill@elmtconsulting.com should you have any questions regarding this project.

Sincerely,



Travis J. McGill
 Director

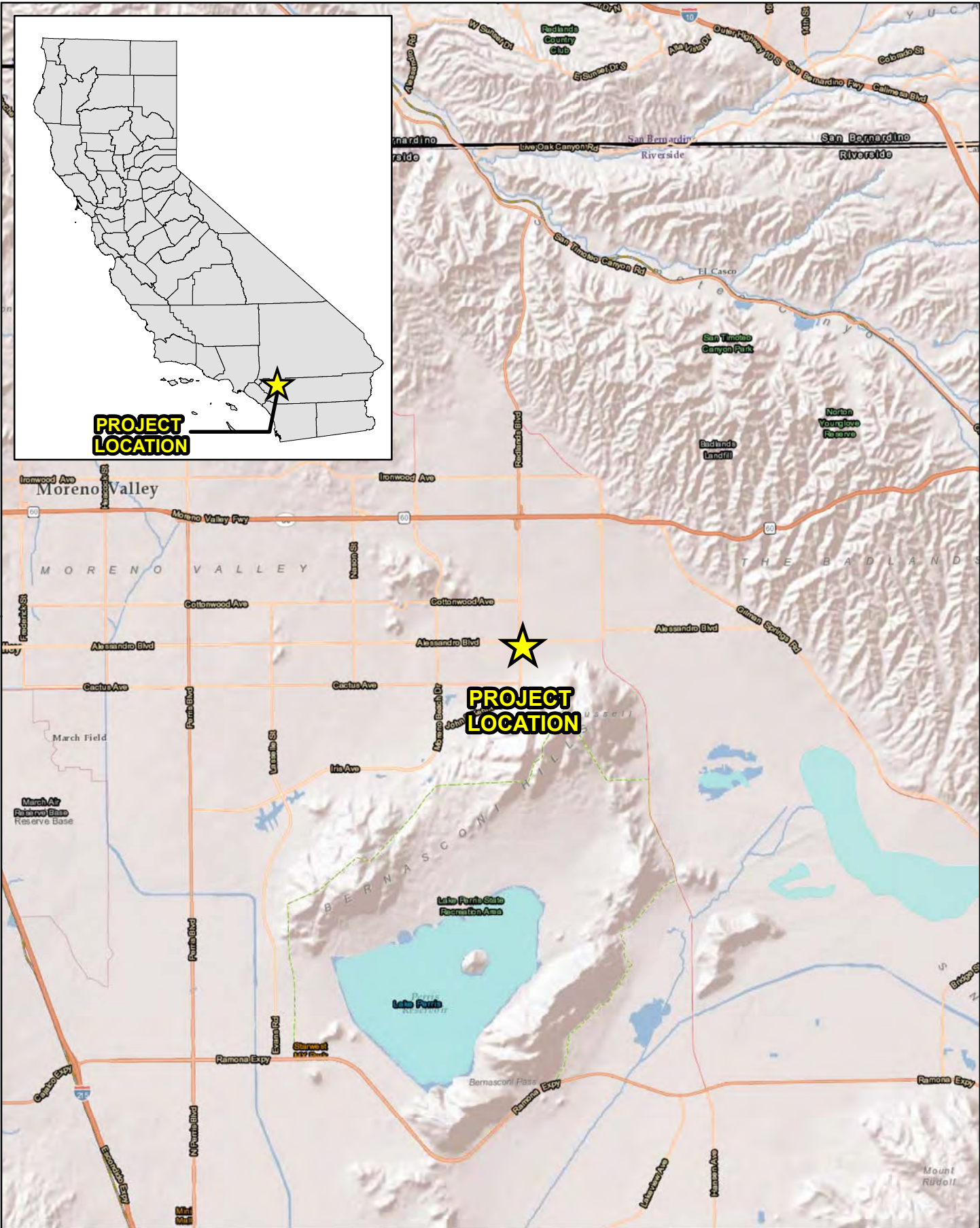
Attachments:

- Project Exhibits*
- Site Plan*
- Site Photographs*
- Potentially Occurring Special-Status Biological Resources*
- Regulations*

Attachment A

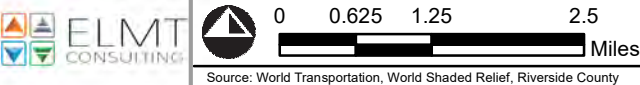
Project Exhibits

Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

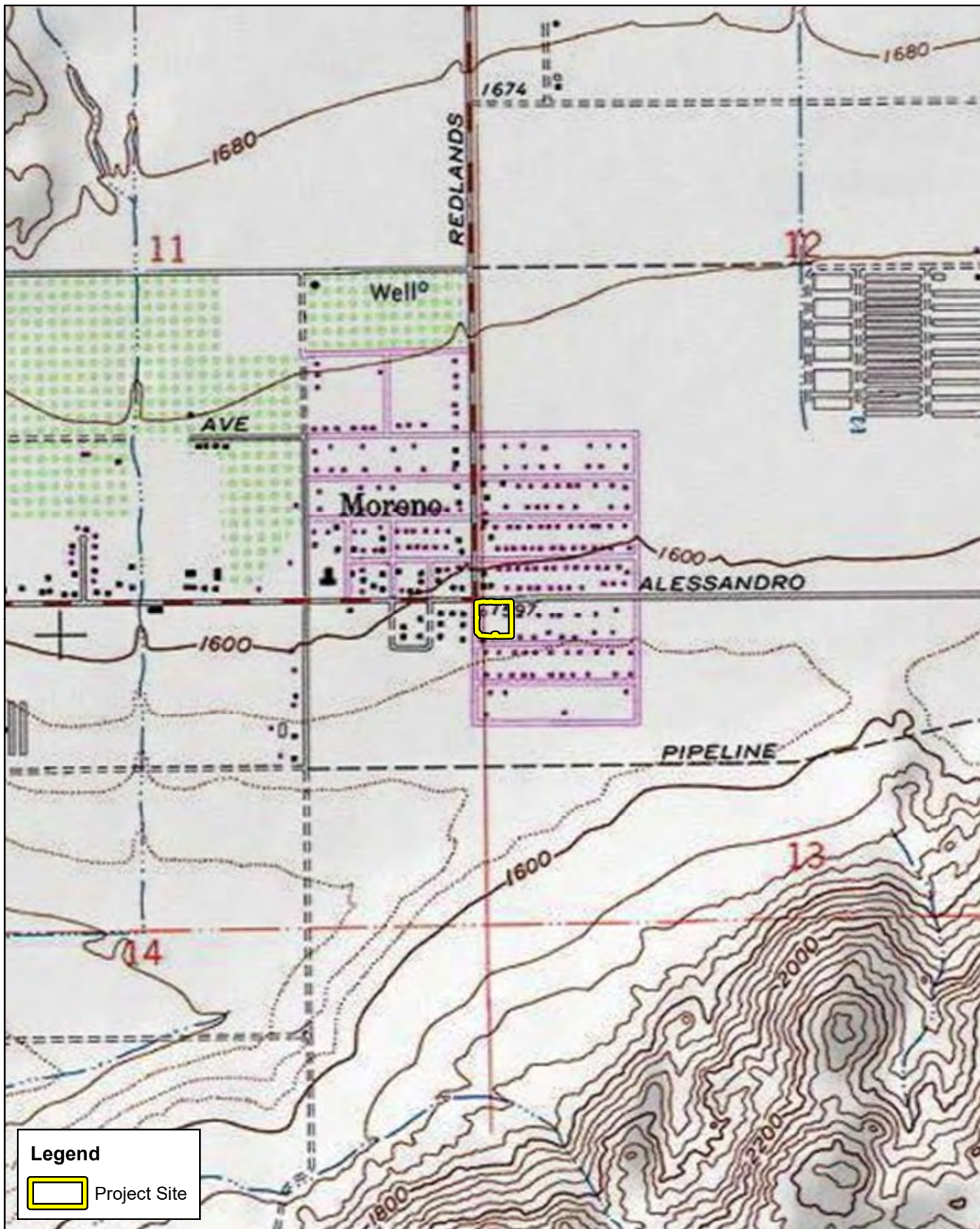


Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

SOUTHEAST CORNER OF REDLANDS AVENUE AND ALESSANDRO BOULEVARD
HABITAT ASSESSMENT AND MSHCP CONSISTENCY ANALYSIS



Regional Vicinity



Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

SOUTHEAST CORNER OF REDLANDS AVENUE AND ALESSANDRO BOULEVARD
HABITAT ASSESSMENT AND MSHCP CONSISTENCY ANALYSIS



Site Vicinity

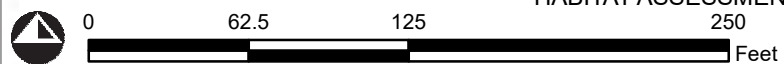


Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Legend

 Project Site

SOUTHEAST CORNER OF REDLANDS AVENUE AND ALESSANDRO BOULEVARD
HABITAT ASSESSMENT AND MSHCP CONSISTENCY ANALYSIS



Source: ESRI Aerial Imagery, World Transportation, Riverside County

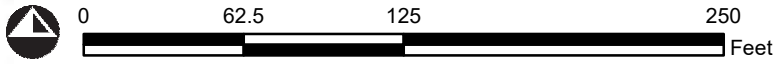
Project Site



Legend

- Project Site
- San Emigdio loam, 0 to 2 percent slopes (SgA)
- San Emigdio loam, 2 to 8 percent slopes (SgC)

SOUTHEAST CORNER OF REDLANDS AVENUE AND ALESSANDRO BOULEVARD
 HABITAT ASSESSMENT AND MSHCP CONSISTENCY ANALYSIS



Source: ESRI Aerial Imagery, Soil Survey Geographic Database, World Transportation, Riverside County

Soils

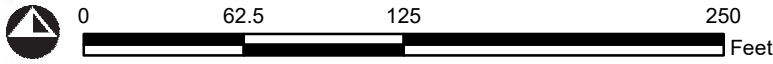
Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)



Legend

- Project Site
- Disturbed
- Developed

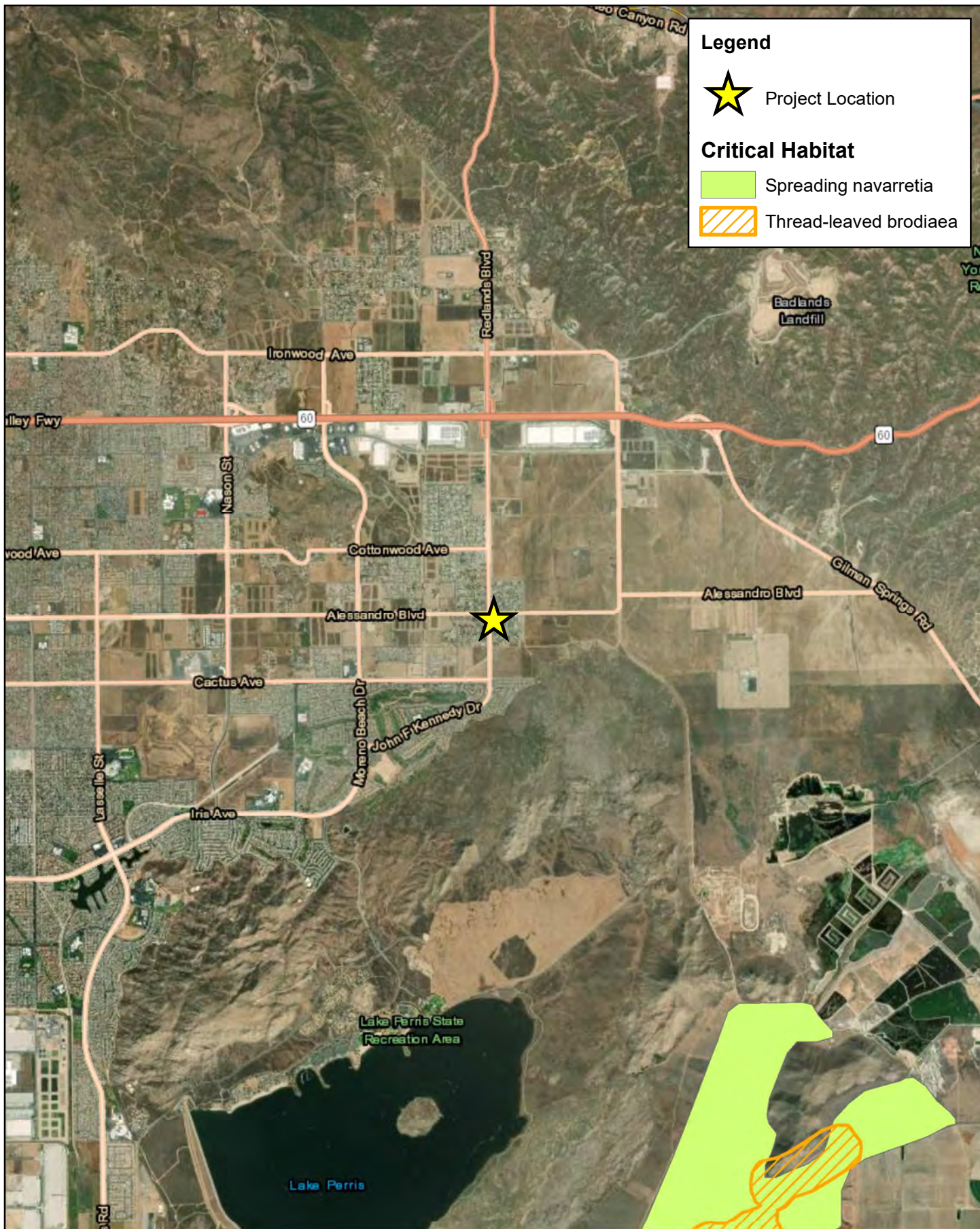
SOUTHEAST CORNER OF REDLANDS AVENUE AND ALESSANDRO BOULEVARD
 HABITAT ASSESSMENT AND MSHCP CONSISTENCY ANALYSIS



Source: ESRI Aerial Imagery, Soil Survey Geographic Database, World Transportation, Riverside County

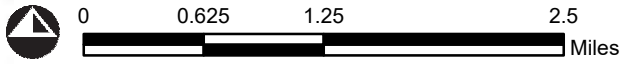
Vegetation

Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)



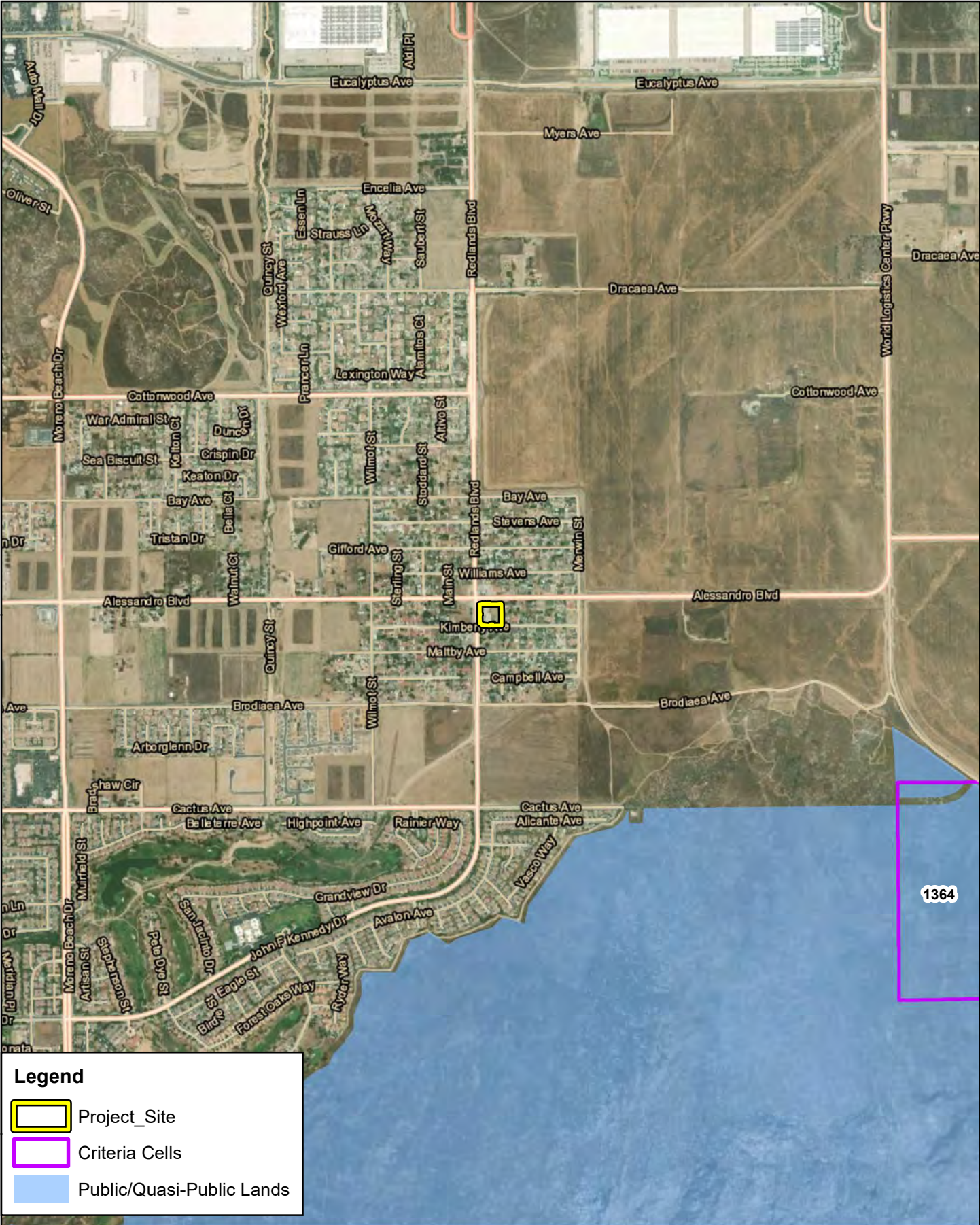
Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

SOUTHEAST CORNER OF REDLANDS AVENUE AND ALESSANDRO BOULEVARD
HABITAT ASSESSMENT AND MSHCP CONSISTENCY ANALYSIS



Source: ESRI Aerial Imagery, USFWS Critical Habitat, Riverside County

Critical Habitat



Legend

- Project_Site
- Criteria Cells
- Public/Quasi-Public Lands

SOUTHEAST CORNER OF REDLANDS AVENUE AND ALESSANDRO BOULEVARD
 HABITAT ASSESSMENT AND MSHCP CONSISTENCY ANALYSIS

MSHCP Criteria Area

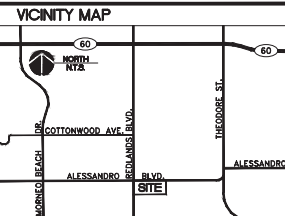
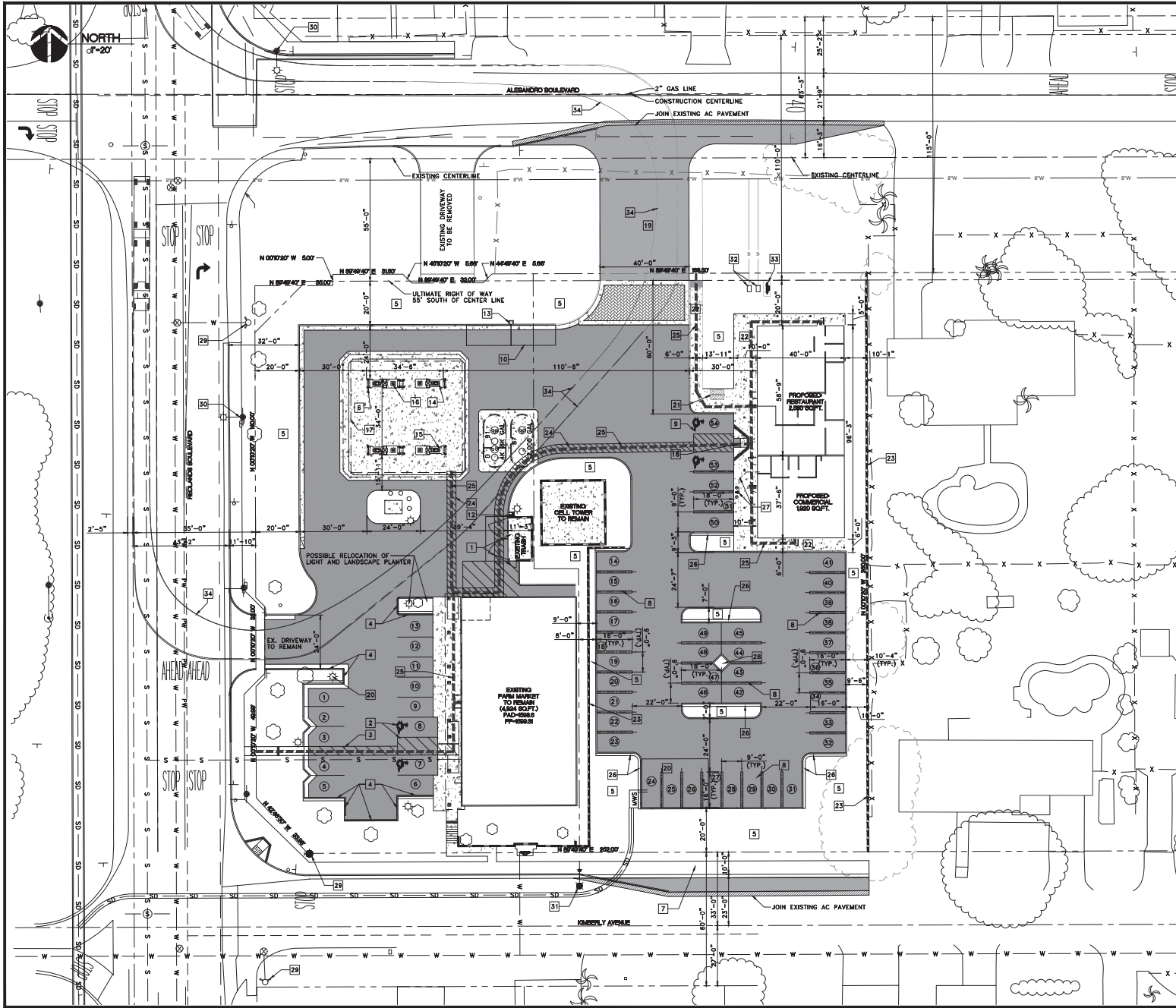


Source: ESRI Aerial Imagery, Western Riverside County MSHCP, Riverside County

Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Attachment B

Site Plan



SITE PLAN NOTES

- 1 EXISTING ADA ACCESSIBLE TRASH ENCLOSURE 20'-0" X 11' WITH 3' MAN DOOR ON SOUTH SIDE.
- 2 EXISTING ADA ACCESSIBLE PARKING STALL WITH ADA SIGN
- 3 EXISTING ADA PATH OF TRAVEL
- 4 EXISTING 6" CURB AND GUTTER.
- 5 PROPOSED LANDSCAPE WITH NEW 6" CONCRETE CURBS.
- 6 PROPOSED 6" BOLLARD. (TYPICAL OF 9)
- 7 PROPOSED SIDEWALK WITH CURB & GUTTER.
- 8 PROPOSED 9'-0" X 16'-0" PARKING STALLS. (TYP. OF)
- 9 PROPOSED 9'-0" X 18'-0" PARKING STALLS. (TYP. OF)
- 10 PROPOSED 9'-0" X 20'-0" PARKING STALLS. (TYP. OF)
- 11 PROPOSED YARD LIGHTS. (TYP. OF 6)
- 12 PROPOSED VENT RISERS.
- 13 PROPOSED AIR & WATER.
- 14 PROPOSED 3+1 DISPENSER WITH DIESEL.
- 15 PROPOSED 3+1 DISPENSER WITH E-85.
- 16 PROPOSED CANOPY COLUMNS.
- 17 PROPOSED 50'-0" X 50'-0" CANOPY.
- 18 PROPOSED ADA COMPLIANT CONCRETE RAMP.
- 19 PROPOSED 40'-0" WIDE DRIVE WAY.
- 20 PROPOSED UNDERGROUND STORM WATER VAULT (STORM T YBMP=2,550 CF.
- 21 PROPOSED BICYCLE PARKING WITH 2 BIKE MIN. CAPACITY.
- 22 PROPOSED CONCRETE SIDEWALK
- 23 PROPOSED CMU RETAINING WALL PER SEPARATE PERMIT, SI PLANS.
- 24 PROPOSED STRIPED ADA PATH OF TRAVEL.
- 25 PROPOSED SITE ACCESSIBILITY PATH OF TRAVEL AT DASHEI
- 26 PROPOSED 12" WIDE CONCRETE STEP OUT.
- 27 PROPOSED BY CHARGING STATION AND CONDUIT, INSTALL DUAL-PORT STATION BY CHARGE POINT.
- 28 PROPOSED DIAMOND PLANTER WITH 5' MIN INTERIOR DIMEN
- 29 EXISTING FIRE HYDRANT
- 30 EXISTING POWER POLE WITH STREET LIGHT
- 31 PROPOSED STREET LIGHT (TYP. OF)
- 32 PROPOSED WATER METERS, SEE CIVIL PLANS
- 33 PROPOSED DOUBLE DETECTOR CHECK ASSEMBLY, SEE CIVIL
- 34 PROPOSED PATH OF REFUELING TRUCK ON/OFF THE SITE

PARKING NOTE: ALL PARKING STALLS TO BE DOUBLE STRIPED I CITY STANDARDS

LEGEND

- (X) PARKING NUMBERS
- PROPERTY LINE
- STREET CENTER LINE
- DEMOLITION LINE
- UTILITY EASEMENT
- BUILDING SETBACK
- EXISTING CONTOURS
- PROPOSED CONTOURS
- ASPHALT CONCRETE P
- CONCRETE PAVING
- DECORATIVE PAVEMENT

Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

HEADY DESIGN INC.
 7345 Caimelin St, Suite 233
 Rancho Cucamonga, CA 91730
 Phone: (909) 581-2002
 Email: theady@headydesign.com

FARM MARKET
 16058 RECLANDS BLVD
 MORENO VALLEY, CA 92555

PROPOSED SITE PLAN

Rev.	#	Date	Revision Description

JOB NO: FMG-001
 DRAWN BY: SK
 DATE: 01/08/2020
 SCALE: 1"=20'

DRAWING: SP1

Attachment C

Site Photographs



Photograph 1: From the northeast corner of the project site looking south along the eastern boundary.



Photograph 2: From the northeast corner of the project site looking west along the northern boundary.

Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)



Photograph 3: From the northwest corner of the project site looking east along the northern boundary.



Photograph 4: From the northwest corner of the project site looking south along the western boundary.

Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)



Photograph 5: From the middle of the western boundary of the project site looking southeast.



Photograph 6: From the southwest corner of the project site looking east along the southern boundary.

Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)



Photograph 7: From the southeast corner of the project site looking west along the southern boundary.



Photograph 8: From the southeast corner of the project site looking north along the eastern boundary.

Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Attachment D

Potentially Occurring Special-Status Plant Species

Attachment D – Potentially Occurring Special-Status Biological Resources

Scientific Name Common Name	Status	Habitat	Observed Onsite	Potential to Occur
SPECIAL-STATUS WILDLIFE SPECIES				
<i>Accipiter cooperii</i> Cooper's hawk	Fed: None CA: WL	Generally found in forested areas up to 3,000 feet in elevation, especially near edges and rivers. Prefers hardwood stands and mature forests, but can be found in urban and suburban areas where there are tall trees for nesting. Common in open areas during nesting season.	No	Low. There is minimal foraging habitat on-site, but no suitable nesting opportunities are present. This species is adapted to urban environments.
<i>Accipiter striatus</i> sharp-shinned hawk	Fed: None CA: WL	Found in pine, fir and aspen forests. They can be found hunting in forest interior and edges from sea level to near alpine areas. Can also be found in rural, suburban and agricultural areas, where they often hunt at bird feeders. Typically found in southern California in the winter months.	No	Low. There is minimal foraging habitat on-site, but no suitable nesting opportunities are present. This species is adapted to urban environments.
<i>Agelaius tricolor</i> tricolored blackbird	Fed: None CA: THR; SSC	Highly colonial yearlong resident of California that frequents emergent wetlands, croplands, grassy fields, flooded land and along edges of ponds. Usually nests near fresh water, preferably in emergent wetland with tall, dense cattails (<i>Typha sp.</i>) or tules (<i>Schoenoplectus sp.</i>), but also in thickets of willow (<i>Salix sp.</i>), blackberry (<i>Rubus sp.</i>), and tall herbs.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Aimophila ruficeps canescens</i> southern California rufous-crowned sparrow	Fed: None CA: WL	Typically found between 3,000 and 6,000 feet in elevation. Breed in sparsely vegetated shrublands on hillsides and canyons. Prefers coastal sage scrub dominated by California sagebrush (<i>Artemisia californica</i>) but can also be found breeding in coastal bluff scrub, low-growing serpentine chaparral, and along the edges of tall chaparral habitats.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Ammodramus savannarum</i> grasshopper sparrow	Fed: None CA: SSC	Occurs in grassland, upland meadow, pasture, hayfield, and old field habitats. Optimal habitat contains short- to medium-height bunch grasses interspersed with patches of bare ground, a shallow litter layer, scattered forbs, and few shrubs. May inhabit thickets, weedy lawns, vegetated landfills, fence rows, open fields, or grasslands.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Anniella stebbinsi</i> southern California legless lizard	Fed: None CA: SSC	Mostly found in coastal sand dunes and a variety of interior habitats, including sandy washes and alluvial fans. They live mostly underground, burrowing in the loose sandy soils.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.

Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Attachment D – Potentially Occurring Special-Status Biological Resources

Scientific Name Common Name	Status	Habitat	Observed Onsite	Potential to Occur
<i>Aquila chrysaetos</i> golden eagle	Fed: None CA: FP, WL	Occupies nearly all terrestrial habitats of the western states except densely forested areas. Favors secluded cliffs with overhanging ledges and large trees for nesting and cover. Hilly or mountainous country where takeoff and soaring are supported by updrafts is generally preferred to flat habitats. Deeply cut canyons rising to open mountain slopes and crags are ideal habitat.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Ardea alba</i> great egret	Fed: None CA: None	Yearlong resident throughout California, except for the high mountains and deserts. Feeds and rests in fresh, and saline emergent wetlands, along the margins of estuaries, lakes, and slow-moving streams, on mudflats and salt ponds, and in irrigated croplands and pastures.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Ardea herodias</i> great blue heron	Fed: None CA: None	Fairly common all year throughout most of California, in shallow estuaries and fresh and saline emergent wetlands. Less common along riverine and rocky marine shores, in croplands, pastures, and in mountains about foothills.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Artemisospiza belli belli</i> Bell's sage sparrow	Fed: None CA: WL	Occurs in chaparral dominated by fairly dense stands of chamise. Also found in coastal sage scrub in south of range.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Asio flammeus</i> short-eared owl	Fed: None CA: SSC	Suitable habitats include salt- and freshwater marshes, irrigated alfalfa or grain fields, and ungrazed grasslands and old pastures. Tule marsh or tall grasslands with cover 30 to 50 cm in height can support nesting pairs.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Asio otus</i> long-eared owl	Fed: None CA: SSC	Hunts mostly at night over grasslands and other open habitats. Nesting occurs in dense trees such as oaks and willows where it occupies stick nests of other species, particularly raptors or corvids.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Aspidoscelis hyperythra</i> orangethroat whiptail	Fed: None CA: WL	Inhabits low-elevations coastal scrub, chamise-redshank chaparral, mixed chaparral, and valley-foothill hardwood habitats. Semi-arid brushy areas typically with loose soil and rocks, including washes, streamsides, rocky hillsides, and coastal chaparral.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Aspidoscelis tigris stejnegeri</i> coastal whiptail	Fed: None CA: SSC	Found in a variety of ecosystems, primarily hot and dry open areas with sparse foliage - chaparral, woodland, and riparian areas.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.

Attachment D – Potentially Occurring Special-Status Biological Resources

Scientific Name Common Name	Status	Habitat	Observed Onsite	Potential to Occur
<i>Athene cunicularia</i> burrowing owl	Fed: None CA: SSC	Primarily a grassland species, but it persists and even thrives in some landscapes highly altered by human activity. Occurs in open, annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. The overriding characteristics of suitable habitat appear to be burrows for roosting and nesting and relatively short vegetation with only sparse shrubs and taller vegetation.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Aythya calisineria</i> canvasback	Fed: None CA: None	Typically found in shallow freshwater lakes, ponds, and marshes.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Buteo regalis</i> ferruginous hawk	Fed: None CA: WL	Occurs primarily in open grasslands and fields, but may be found in sagebrush flats, desert scrub, low foothills, or along the edges of pinyon-juniper woodland. Feeds primarily on small mammals and typically found in agricultural or open fields.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Buteo swainsoni</i> Swainson's hawk	Fed: None CA: THR	Typical habitat is open desert, grassland, or cropland containing scattered, large trees or small groves. Breeds in stands with few trees in juniper-sage flats, riparian areas, and in oak savannah in the Central Valley. Forages in adjacent grassland or suitable grain or alfalfa fields or livestock pastures.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Calypte costae</i> Costa's hummingbird	Fed: None CA: None	Desert and semi-desert, arid brushy foothills and chaparral. A desert hummingbird that breeds in the Sonoran and Mojave Deserts. Departs desert heat moving into chaparral, scrub, and woodland habitats.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Chaetodipus fallax fallax</i> northwestern San Diego pocket mouse	Fed: None CA: SSC	Occurs in desert and coastal habitats in southern California, Mexico, and northern Baja California, from sea level to at least 1,400 meters above msl. Found in a variety of temperate habitats ranging from chaparral and grasslands to scrub forests and deserts. Requires low growing vegetation or rocky outcroppings, as well as sandy soils for burrowing.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Chaetura vauxi</i> Vaux's swift	Fed: None CA: SSC	Prefers redwood and Douglas-fir habitats with nest-sites in large hollow trees and snags, especially tall, burned-out stubs.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.

Attachment D – Potentially Occurring Special-Status Biological Resources

Scientific Name Common Name	Status	Habitat	Observed Onsite	Potential to Occur
<i>Circus hudsonius</i> northern harrier	Fed: None CA: SSC	Most common in large, undisturbed tracts of wetlands and grasslands with low, thick vegetation. They breed in freshwater and brackish marshes, lightly grazed meadows, old fields, tundra, dry upland prairies, drained marshlands, high-desert shrubsteppe, and riverside woodlands. During winter they use a range of habitats with low vegetation, including deserts, coastal sand dunes, pasturelands, croplands, dry plains, grasslands, old fields, estuaries, open floodplains, and marshes.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Coccyzus americanus occidentalis</i> western yellow-billed cuckoo	Fed: THR CA: END	In California, the breeding distribution is now thought to be restricted to isolated sites in Sacramento, Amargosa, Kern, Santa Ana, and Colorado River valleys. Obligate riparian species with a primary habitat association of willow-cottonwood riparian forest.	No	Presumed Absent. There is no suitable habitat within the project site.
<i>Coleonyx variegatus abbotti</i> San Diego banded gecko	Fed: None CA: SSC	Prefers rocky coastal sage and chaparral habitat with granite outcrops. Also occurs in dry, rocky riverbeds. Species avoids areas with a high intensity of artificial night lighting.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Crotalus ruber</i> red-diamond rattlesnake	Fed: None CA: SSC	It can be found from the desert, through dense chaparral in the foothills (it avoids the mountains above around 4,000 feet), to warm inland mesas and valleys, all the way to the cool ocean shore. It is most commonly associated with heavy brush with large rocks or boulders. Dense chaparral in the foothills, cactus or boulder associated coastal sage scrub, oak and pine woodlands, and desert slope scrub associations are known to carry populations of the northern red-diamond rattlesnake; however, chamise and red shank associations may offer better structural habitat for refuges and food resources for this species than other habitats.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Diadophis punctatus modestus</i> San Bernardino ringneck snake	Fed: None CA: None	Common in open, relatively rocky areas within valley-foothill, mixed chaparral, and annual grass habitats.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.

Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Attachment D – Potentially Occurring Special-Status Biological Resources

Scientific Name Common Name	Status	Habitat	Observed Onsite	Potential to Occur
<i>Dipodomys merriami parvus</i> San Bernardino kangaroo rat	Fed: END CA: CE; SSC	Primarily found in Riversidian alluvial fan sage scrub and sandy loam soils, alluvial fans and flood plains, and along washes with nearby sage scrub. May occur at lower densities in Riversidian upland sage scrub, chaparral and grassland in uplands and tributaries in proximity to Riversidian alluvial fan sage scrub habitats. Tend to avoid rocky substrates and prefer sandy loam substrates for digging of shallow burrows.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Dipodomys simulans</i> Dulzura kangaroo rat	Fed: None CA: None	Typical habitat is open desert, grassland, or cropland containing scattered, large trees or small groves. Breeds in stands with few trees in juniper-sage flats, riparian areas, and in oak savannah in the Central Valley. Forages in adjacent grassland or suitable grain or alfalfa fields or livestock pastures.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Dipodomys stephensi</i> Stephens' kangaroo rat	Fed: END CA: THR	Occur in arid and semi-arid habitats with some grass or brush. Prefer open habitats with less than 50% protective cover. Require soft, well-drained substrate for building burrows and are typically found in areas with sandy soil.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Egretta thula</i> snowy egret	Fed: None CA: None	Widespread in California along shores of coastal estuaries, fresh and saline emergent wetlands, ponds, slow-moving rivers, irrigation ditches, and wet fields. In southern California, common yearlong in the Imperial Valley and along the Colorado River.	No	Presumed Absent. There is no suitable habitat within the project site.
<i>Elanus leucurus</i> white-tailed kite	Fed: None CA: FP	Occurs in low elevation, open grasslands, savannah-like habitats, agricultural areas, wetlands, and oak woodlands. Uses trees with dense canopies for cover.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Empidonax traillii</i> willow flycatcher	Fed: None CA: END	Occurs in riparian woodlands in southern California. Typically requires large areas of willow thickets in broad valleys, canyon bottoms, or around ponds and lakes. These areas typically have standing or running water, or are at least moist.	No	Presumed Absent. There is no suitable habitat within the project site.
<i>Empidonax traillii extimus</i> southwestern willow flycatcher	Fed: END CA: END	Occurs in riparian woodlands in southern California. Typically requires large areas of willow thickets in broad valleys, canyon bottoms, or around ponds and lakes. These areas typically have standing or running water, or are at least moist.	No	Presumed Absent. There is no suitable habitat within the project site.

Attachment D – Potentially Occurring Special-Status Biological Resources

Scientific Name Common Name	Status	Habitat	Observed Onsite	Potential to Occur
<i>Emys marmorata</i> western pond turtle	Fed: None CA: SSC	Found in ponds, lakes, rivers, streams, creeks, marshes, and irrigation ditches, with abundant vegetation, either rocky or muddy bottoms, in woodland, forest, and grassland. In streams, prefers pools to shallower areas. Logs, rocks, cattail mats, and exposed banks are required for basking. May enter brackish water and even seawater. Found at elevations from sea level to over 5,900 feet (1,800 m).	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Eremophila alpestris actia</i> California horned lark	Fed: None CA: WL	Occurs in meadows, grasslands, open fields, prairie, and alkali flats. This subspecies is typically found in coastal regions.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Eumops perotis californicus</i> western mastiff bat	Fed: None CA: SSC	Primarily a cliff-dwelling species, roost generally under exfoliating rock slabs. Roosts are generally high above the ground, usually allowing a clear vertical drop of at least three meters below the entrance for flight. In California, it is most frequently encountered in broad open areas. Its foraging habitat includes dry desert washes, flood plains, chaparral, oak woodland, open ponderosa pine forest, grassland, and agricultural areas.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Falco columbarius</i> merlin	Fed: None CA: WL	Nest in forested openings, edges, and along rivers across northern North America. Found in open forests, grasslands, and especially coastal areas with flocks of small songbirds or shorebirds.	No	Presumed Absent. There is no suitable habitat within the project site.
<i>Falco mexicanus</i> prairie falcon	Fed: None CA: WL	Commonly occur in arid and semiarid shrubland and grassland community types. Also occasionally found in open parklands within coniferous forests. During the breeding season, they are found commonly in foothills and mountains which provide cliffs and escarpments suitable for nest sites.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Falco peregrinus anatum</i> American peregrine falcon	Fed: DL CA: DL; FP	Uncommon winter resident of the inland region of southern California. Active nesting sites are known along the coast north of Santa Barbara, in the Sierra Nevada, and in other mountains of northern California. Breeds mostly in woodland, forest, and coastal habitats. Riparian areas and coastal and inland wetlands are important habitats yearlong, especially in nonbreeding seasons.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Haliaeetus leucocephalus</i> bald eagle	Fed: DL CA: DL; FP	Occur primarily at or near seacoasts, rivers, swamps, and large lakes. Need ample foraging opportunities, typically near a large water source.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.

Attachment D – Potentially Occurring Special-Status Biological Resources

Scientific Name Common Name	Status	Habitat	Observed Onsite	Potential to Occur
<i>Icteria virens</i> yellow-breasted chat	Fed: None CA: SSC	Primarily found in tall, dense, relatively wide riparian woodlands and thickets of willows, vine tangles, and dense brush with well-developed understories. Nesting areas are associated with streams, swampy ground, and the borders of small ponds. Breeding habitat must be dense to provide shade and concealment. It winters south the Central America.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Lanius ludovicianus</i> loggerhead shrike	Fed: None CA: SSC	Often found in broken woodlands, shrublands, and other habitats. Prefers open country with scattered perches for hunting and fairly dense brush for nesting.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Larus californicus</i> California gull	Fed: None CA: WL	Require isolated islands in rivers, reservoirs and natural lakes for nesting, where predations pressures from terrestrial mammals are diminished. Uses both fresh and saline aquatic habitats at variable elevations and degrees of aridity for nesting and for opportunistic foraging.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Lasiurus xanthinus</i> western yellow bat	Fed: None CA: SSC	Roosts in palm trees in foothill riparian, desert wash, and palm oasis habitats with access to water for foraging.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Lepus californicus bennettii</i> San Diego black-tailed jackrabbit	Fed: None CA: SSC	Found in diverse habitats, but primarily is found in arid regions supporting shortgrass habitats. Openness of open scrub habitat is preferred over dense chaparral.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Lynx rufus pallidensis</i> pallid bobcat	Fed: None CA: None	Found on the western edge of the great basin habitat in extreme northeast California. Live in a variety of habitats including forests, deserts, mountains, swamps and farmland.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Myotis ciliolabrum</i> western small-footed myotis	Fed: None CA: None	Occurs in a wide range of habitats, mostly arid wooded and brushy uplands near water. Prefers open stands in forests and woodlands. Roosts in caves, buildings, mines, and crevices.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Myotis yumanensis</i> Yuma myotis	Fed: None CA: None	Common and widespread in California within open forests and woodlands with sources of water over which to feed. Roosts in buildings, mines, caves, or crevices. Has also been seen roosting in abandoned swallow nests and under bridges.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.

Attachment D – Potentially Occurring Special-Status Biological Resources

Scientific Name Common Name	Status	Habitat	Observed Onsite	Potential to Occur
<i>Neotoma lepida intermedia</i> San Diego desert woodrat	Fed: None CA: SSC	Occurs in coastal scrub communities between San Luis Obispo and San Diego Counties. Prefers moderate to dense canopies, and especially rocky outcrops.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Numenius americanus</i> long-billed curlew	Fed: None CA: WL	Preferred winter habitats include large coastal estuaries, upland herbaceous areas, and croplands. On estuaries, feeding occurs mostly on intertidal mudflats.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Nycticorax nycticorax</i> black-crowned night heron	Fed: None CA: None	Fairly common, yearlong resident in lowlands and foothills throughout most of California, including the Salton Sea and Colorado River areas, and very common locally in large nesting colonies. Feeds along the margins of lacustrine, large riverine, and fresh and saline emergent habitats and rarely, on kelp beds in marine sub tidal habitats. Nests and roosts in dense-foliaged trees and dense emergent wetlands.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Nyctinomops femorosaccus</i> pocketed free-tailed bat	Fed: None CA: SSC	Often found in pinyon-juniper woodlands, desert scrub, desert succulent shrub, desert riparian, desert wash, alkali desert scrub, Joshua tree, and palm oasis.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Pandion haliaetus</i> osprey	Fed: None CA: WL	Remain close to still or slow-moving bodies of water including oceans, rivers, lakes, mangroves, coastal wetlands, lagoons, reefs, estuaries and marshes. Generally nest in high places, such as trees, power poles, or cliffs.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Pelecanus erythrorhynchos</i> American white pelican	Fed: None CA: SSC	Locally common winter resident of southern California. Typically forage in shallow inland waters, such as open areas in marshes and along lake or river edges. Also occur in shallow coastal marine habitats.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Perognathus longimembris brevinasus</i> Los Angeles pocket mouse	Fed: None CA: SSC	Resides in lower elevation grasslands and coastal sage scrub communities in and around the Los Angeles Basin. Prefers open ground with fine sandy soils. May not dig extensive burrows, but instead will seek refuge under weeds and dead leaves instead.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Phalacrocorax auritus</i> double-crested cormorant	Fed: None CA: WL	Common yearlong resident in southern California. Occurs widely in freshwater and marine habitats along coastlines. Require open water where they can forage for schooling fish.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.

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Attachment D – Potentially Occurring Special-Status Biological Resources

Scientific Name Common Name	Status	Habitat	Observed Onsite	Potential to Occur
<i>Phrynosoma blainvillii</i> coast horned lizard	Fed: None CA: SSC	Found in a wide variety of vegetation types including coastal sage scrub, annual grassland, chaparral, oak woodland, riparian woodland and coniferous forest. In inland areas, this species is restricted to areas with pockets of open microhabitat, created by disturbance (i.e. fire, floods, roads, grazing, fire breaks). The key elements of such habitats are loose, fine soils with a high sand fraction; an abundance of native ants or other insects; and open areas with limited overstory for basking and low, but relatively dense shrubs for refuge.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Plegadis chihi</i> white-faced ibis	Fed: None CA: WL	Prefers to feed in fresh emergent wetland, shallow lacustrine waters, muddy ground of wet meadows, and irrigated or flooded pastures and croplands. Nests in dense, fresh emergent wetland.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Poliophtila californica californica</i> coastal California gnatcatcher	Fed: THR CA: SSC	Obligate resident of sage scrub habitats that are dominated by California sagebrush. This species generally occurs below 750 feet elevation in coastal regions and below 1,500 feet inland. It prefers habitat with more low-growing vegetation.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Salvadora hexalepis virgultea</i> coast patch-nosed snake	Fed: None CA: SSC	Inhabits semi-arid brushy areas and chaparral in canyons, rocky hillsides, and plains.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Setophaga petechia</i> yellow warbler	Fed: None CA: SSC	Nests over all of California except the Central Valley, the Mojave Desert region, and high altitudes and the eastern side of the Sierra Nevada. Winters along the Colorado River and in parts of Imperial and Riverside Counties. Nests in riparian areas dominated by willows, cottonwoods, sycamores, or alders or in mature chaparral. May also use oaks, conifers, and urban areas near stream courses.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Spea hammondi</i> western spadefoot	Fed: None CA: SSC	Prefers open areas with sandy or gravelly soils, in a variety of habitats including mixed woodlands, grasslands, coastal sage scrub, chaparral, sandy washed, lowlands, river floodplains, alluvial fans, playas, alkali flats, foothills, and mountains. Rainpools which do not contain bullfrogs, fish, or crayfish are necessary for breeding.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.

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Attachment D – Potentially Occurring Special-Status Biological Resources

Scientific Name Common Name	Status	Habitat	Observed Onsite	Potential to Occur
<i>Sphyrapicus ruber</i> red-breasted sapsucker	Fed: None CA: None	An uncommon to fairly common, yearlong or summer resident in openly wooded, mountainous parts of California. In southern California, an uncommon summer resident locally in the higher mountains. Preferred nesting habitats include montane riparian, aspen, montane hardwood-conifer, mixed conifer, and red fir, especially near meadows, clearings, lakes, and slow-moving streams.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Spinus lawrencei</i> Lawrence's goldfinch	Fed: None CA: None	Typical habitats include valley foothill hardwood, valley foothill hardwood-conifer, and, in southern California, desert riparian, palm oasis, pinyon-juniper, and lower montane habitats. Nearby herbaceous habitats often used for feeding. Open woodlands, chaparral, and weedy fields. Closely associated with oaks. Nests in open oak or other arid woodland and chaparral near water.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Taxidea taxus</i> American badger	Fed: None CA: SSC	Primarily occupy grasslands, parklands, farms, tallgrass and shortgrass prairies, meadows, shrub-steppe communities and other treeless areas with sandy loam soils where it can dig more easily for its prey. Occasionally found in open chaparral (with less than 50% plant cover) and riparian zones.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Vireo bellii pusillus</i> least Bell's vireo	Fed: END CA: END	Primarily occupy Riverine riparian habitat that typically feature dense cover within 1 -2 meters of the ground and a dense, stratified canopy. Typically it is associated with southern willow scrub, cottonwood-willow forest, mule fat scrub, sycamore alluvial woodlands, coast live oak riparian forest, arroyo willow riparian forest, or mesquite in desert localities. It uses habitat which is limited to the immediate vicinity of water courses, 2,000 feet elevation in the interior.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
<i>Xanthocephalus xanthocephalus</i> yellow-headed blackbird	Fed: None CA: SSC	Uncommon yearlong resident of southern California throughout freshwater emergent wetlands, and moist, open areas along agricultural areas, and mudflats of lacustrine habitats. Prefers to nest in dense wetland vegetation characterized by cattails, tules, or other similar plant species along the border of lakes and ponds.	No	Presumed Absent. There is no suitable habitat within or adjacent to the project site.
SPECIAL-STATUS PLANT SPECIES				
<i>Abronia villosa var. aurita</i> chaparral sand-verbena	Fed: None CA: None CNPS: 1B.1	Grows in sandy soils in coastal sage scrub and in chaparral habitats. Grows in elevation from 262 to 5,249 feet. Blooming period ranges from January to September.	No	Presumed Absent. There is no suitable habitat within the project site.

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Attachment D – Potentially Occurring Special-Status Biological Resources

Scientific Name Common Name	Status	Habitat	Observed Onsite	Potential to Occur
<i>Artemisia palmeri</i> San Diego sagewort	Fed: None CA: None CNPS: 4.2	Found in sandy and mesic soils within chaparral, coastal scrub, riparian forest, riparian scrub, and riparian woodland habitats. Found at elevations ranging from 49 to 3,002 feet. Blooming period is from February to September.	No	Presumed Absent. There is no suitable habitat within the project site.
<i>Berberis nevinii</i> Nevin's barberry	Fed: END CA: END CNPS: 1B.1	Occurs on steep, north-facing slopes or in low-grade sandy washes in chaparral, cismontane woodland, coastal scrub, and riparian scrub. From 951 to 5,167 feet in elevation. Blooming period is from February to June.	No	Presumed Absent. There is no suitable habitat within the project site.
<i>Calochortus plummerae</i> Plummer's mariposa-lily	Fed: None CA: None CNPS: 4.2	Prefers openings in chaparral, foothill woodland, coastal sage scrub, valley and foothill grasslands, cismontane woodland, lower montane coniferous forest and yellow pine forest. Often found on dry, rocky slopes and soils and brushy areas. Can be very common after a fire. From 328 to 5,577 feet in elevation. Blooming period is from May to July.	No	Presumed Absent. There is no suitable habitat within the project site.
<i>Caulanthus simulans</i> Payson's jewelflower	Fed: None CA: None CNPS: 4.2	Occurs on granitic sandy soils in chaparral and coastal scrub habitats. Found at elevations ranging from 295 to 7,218 feet. Blooming period is from February to June.	No	Presumed Absent. There is no suitable habitat within the project site.
<i>Centromadia pungens ssp. laevis</i> smooth tarplant	Fed: None CA: None CNPS: 1B.1	Occurs in alkaline soils within chenopod scrub, meadows and seeps, playas, riparian woodland, and valley and foothill grassland habitats. Grows in elevation ranging from 0 to 2,100 feet. Blooming period ranges from April to September.	No	Presumed Absent. There is no suitable habitat within the project site.
<i>Chorizanthe leptotheca</i> Peninsular spineflower	Fed: None CA: None CNPS: 4.2	Found in granitic soils within alluvial fan, chaparral, coastal scrub, and lower montane coniferous forest habitat. Found at elevations ranging from 984 to 6,234 feet. Blooming period is from May to August.	No	Presumed Absent. There is no suitable habitat within the project site.
<i>Chorizanthe parryi var. parryi</i> Parry's spineflower	Fed: None CA: None CNPS: 1B.1	Occurs on sandy and/or rocky soils in chaparral, coastal sage scrub, and sandy openings within alluvial washes and margins. Found at elevations ranging from 951 to 3,773 feet. Blooming period is from April to June.	No	Presumed Absent. There is no suitable habitat within the project site.
<i>Chorizanthe xanti var. leucotheca</i> white-bracted spineflower	Fed: None CA: None CNPS: 1B.2	Found in sandy or gravelly soils within coastal scrub (alluvial fans), Mojavean desert scrub, pinyon and juniper woodland habitats. Found at elevations ranging from 984 to 3,937 feet. Blooming period is from April to June.	No	Presumed Absent. There is no suitable habitat within the project site.
<i>Deinandra paniculata</i> paniculate tarplant	Fed: None CA: None CNPS: 4.2	Typically found in vernal mesic, sometimes sandy soils in coastal scrub, valley and foothill grasslands, and vernal pools. Found at elevations ranging from 82 to 3,084 feet. Blooming period is from April to November.	No	Presumed Absent. There is no suitable habitat within the project site.

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Attachment D – Potentially Occurring Special-Status Biological Resources

Scientific Name Common Name	Status	Habitat	Observed Onsite	Potential to Occur
<i>Juglans californica</i> southern California black walnut	Fed: None CA: None CNPS: 4.2	Found in chaparral, cismontane woodland, coastal scrub, and riparian woodland habitats. Found at elevations ranging from 164 to 2,953 feet. Blooming period is from March to August.	No	Presumed Absent. There is no suitable habitat within the project site.
<i>Lasthenia glabrata ssp. coulteri</i> Coulter's goldfields	Fed: None CA: None CNPS: 1B.1	Prefers playas, vernal pools, and coastal salt marshes and swamps. Found at elevations ranging from 3 to 4,003 feet. Blooming period is from February to June.	No	Presumed Absent. There is no suitable habitat within the project site.
<i>Lepidium virginicum var. robinsonii</i> Robinson's pepper-grass	Fed: None CA: None CNPS: 4.3	Dry soils on chaparral and coastal sage scrub. Found at elevations ranging from 3 to 2,904 feet. Blooming period is from January to July.	No	Presumed Absent. There is no suitable habitat within the project site.
<i>Symphotrichum defoliatum</i> San Bernardino aster	Fed: None CA: None CNPS: 1B.2	Grows in cismontane woodland, coastal scrub, lower montane coniferous forest, meadows and seeps, marshes and swamps, valley and foothill grassland (vernally mesic). Can be found growing near ditches, streams, and springs within these habitats. Found at elevations ranging from 7 to 6,693 feet. Blooming period is from July to November.	No	Presumed Absent. There is no suitable habitat within the project site.
SPECIAL-STATUS PLANT COMMUNITIES				
Southern Sycamore Alder Riparian Woodland	CDFW Sensitive Habitat	Occurs below 2,000 meters in elevation, sycamore and alder often occur along seasonally-flooded banks; cottonwoods and willows are also often present. Poison oak, mugwort, elderberry and wild raspberry may be present in understory.	No	Absent

U.S. Fish and Wildlife Service (USFWS) - Federal
 END- Federal Endangered
 THR- Federal Threatened
 Candidate END – Under Review

California Department of Fish and Wildlife (CDFW) - California
 END- California Endangered
 CSC- California Species of Concern
 WL- Watch List
 FP- California Fully Protected

California Native Plant Society (CNPS)
California Rare Plant Rank
 1A- Plants Presumed Extirpated in California and Either Rare or Extinct Elsewhere
 1B- Plants Rare, Threatened, or Endangered in California and Elsewhere
 2B- Plants Rare, Threatened, or Endangered in California, but More Common Elsewhere
 4- Plants of Limited Distribution – A Watch List

Threat Ranks
 0.1- Seriously threatened in California
 0.2- Moderately threatened in California
 0.3- Not very threatened in California

Attachment E

Regulations

Special status species are native species that have been afforded special legal or management protection because of concern for their continued existence. There are several categories of protection at both federal and state levels, depending on the magnitude of threat to continued existence and existing knowledge of population levels.

Federal Regulations

Endangered Species Act of 1973

Federally listed threatened and endangered species and their habitats are protected under provisions of the Federal Endangered Species Act (ESA). Section 9 of the ESA prohibits “take” of threatened or endangered species. “Take” under the ESA is defined as to “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any of the specifically enumerated conduct.” The presence of any federally threatened or endangered species that are in a project area generally imposes severe constraints on development, particularly if development would result in “take” of the species or its habitat. Under the regulations of the ESA, the United States Fish and Wildlife Service (USFWS) may authorize “take” when it is incidental to, but not the purpose of, an otherwise lawful act.

Critical Habitat is designated for the survival and recovery of species listed as threatened or endangered under the ESA. Critical Habitat includes those areas occupied by the species, in which are found physical and biological features that are essential to the conservation of an ESA listed species and which may require special management considerations or protection. Critical Habitat may also include unoccupied habitat if it is determined that the unoccupied habitat is essential for the conservation of the species.

Whenever federal agencies authorize, fund, or carry out actions that may adversely modify or destroy Critical Habitat, they must consult with USFWS under Section 7 of the ESA. The designation of Critical Habitat does not affect private landowners, unless a project they are proposing uses federal funds, or requires federal authorization or permits (e.g., funding from the Federal Highway Administration or a permit from the U.S. Army Corps of Engineers (Corps)).

If USFWS determines that Critical Habitat will be adversely modified or destroyed from a proposed action, the USFWS will develop reasonable and prudent alternatives in cooperation with the federal institution to ensure the purpose of the proposed action can be achieved without loss of Critical Habitat. If the action is not likely to adversely modify or destroy Critical Habitat, USFWS will include a statement in its biological opinion concerning any incidental take that may be authorized and specify terms and conditions to ensure the agency is in compliance with the opinion.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) (16 U.S. Government Code [USC] 703) makes it unlawful to pursue, capture, kill, possess, or attempt to do the same to any migratory bird or part, nest, or egg of any such bird listed in wildlife protection treaties between the United States, Great Britain, Mexico, Japan, and the countries of the former Soviet Union, and authorizes the U.S. Secretary of the Interior to protect and regulate the taking of migratory birds. It establishes seasons and bag limits for hunted species and protects migratory birds, their occupied nests, and their eggs (16 USC 703; 50 CFR 10, 21).

The MBTA covers the taking of any nests or eggs of migratory birds, except as allowed by permit pursuant to 50 CFR, Part 21. Disturbances causing nest abandonment and/or loss of reproductive effort (i.e., killing or abandonment of eggs or young) may also be considered “take.” This regulation seeks to protect migratory birds and active nests.

In 1972, the MBTA was amended to include protection for migratory birds of prey (e.g., raptors). Six families of raptors occurring in North America were included in the amendment: Accipitridae (kites, hawks, and eagles); Cathartidae (New World vultures); Falconidae (falcons and caracaras); Pandionidae (ospreys); Strigidae (typical owls); and Tytonidae (barn owls). The provisions of the 1972 amendment to the MBTA protects all species and subspecies of the families listed above. The MBTA protects over 800 species including geese, ducks, shorebirds, raptors, songbirds and many relatively common species.

State Regulations

California Environmental Quality Act (CEQA)

The California Environmental Quality Act (CEQA) provides for the protection of the environment within the State of California by establishing State policy to prevent significant, avoidable damage to the environment through the use of alternatives or mitigation measures for projects. It applies to actions directly undertaken, financed, or permitted by State lead agencies. If a project is determined to be subject to CEQA, the lead agency will be required to conduct an Initial Study (IS); if the IS determines that the project may have significant impacts on the environment, the lead agency will subsequently be required to write an Environmental Impact Report (EIR). A finding of non-significant effects will require either a Negative Declaration or a Mitigated Negative Declaration instead of an EIR. Section 15380 of the CEQA Guidelines independently defines “endangered” and “rare” species separately from the definitions of the California Endangered Species Act (CESA). Under CEQA, “endangered” species of plants or animals are defined as those whose survival and reproduction in the wild are in immediate jeopardy, while “rare” species are defined as those who are in such low numbers that they could become endangered if their environment worsens.

California Endangered Species Act (CESA)

In addition to federal laws, the state of California implements the CESA which is enforced by CDFW. The CESA program maintains a separate listing of species beyond the FESA, although the provisions of each act are similar.

State-listed threatened and endangered species are protected under provisions of the CESA. Activities that may result in “take” of individuals (defined in CESA as; “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill”) are regulated by CDFW. Habitat degradation or modification is not included in the definition of “take” under CESA. Nonetheless, CDFW has interpreted “take” to include the destruction of nesting, denning, or foraging habitat necessary to maintain a viable breeding population of protected species.

The State of California considers an endangered species as one whose prospects of survival and reproduction are in immediate jeopardy. A threatened species is considered as one present in such small numbers throughout its range that it is likely to become an endangered species in the near future in the

absence of special protection or management. A rare species is one that is considered present in such small numbers throughout its range that it may become endangered if its present environment worsens. State threatened and endangered species are fully protected against take, as defined above.

The CDFW has also produced a species of special concern list to serve as a species watch list. Species on this list are either of limited distribution or their habitats have been reduced substantially, such that a threat to their populations may be imminent. Species of special concern may receive special attention during environmental review, but they do not have formal statutory protection. At the federal level, USFWS also uses the label species of concern, as an informal term that refers to species which might be in need of concentrated conservation actions. As the Species of Concern designated by USFWS do not receive formal legal protection, the use of the term does not necessarily ensure that the species will be proposed for listing as a threatened or endangered species.

Fish and Game Code

Fish and Game Code Sections 3503, 3503.5, 3511, and 3513 are applicable to natural resource management. For example, Section 3503 of the Code makes it unlawful to destroy any birds' nest or any birds' eggs that are protected under the MBTA. Further, any birds in the orders Falconiformes or Strigiformes (Birds of Prey, such as hawks, eagles, and owls) are protected under Section 3503.5 of the Fish and Game Code which makes it unlawful to take, possess, or destroy their nest or eggs. A consultation with CDFW may be required prior to the removal of any bird of prey nest that may occur on a project site. Section 3511 of the Fish and Game Code lists fully protected bird species, where the CDFW is unable to authorize the issuance of permits or licenses to take these species. Pertinent species that are State fully protected by the State include golden eagle (*Aquila chrysaetos*) and white-tailed kite (*Elanus leucurus*). Section 3513 of the Fish and Game Code makes it unlawful to take or possess any migratory nongame bird as designated in the MBTA or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the MBTA.

Native Plant Protection Act

Sections 1900–1913 of the Fish and Game Code were developed to preserve, protect, and enhance Rare and Endangered plants in the state of California. The act requires all state agencies to use their authority to carry out programs to conserve Endangered and Rare native plants. Provisions of the Native Plant Protection Act prohibit the taking of listed plants from the wild and require notification of the CDFW at least ten days in advance of any change in land use which would adversely impact listed plants. This allows the CDFW to salvage listed plant species that would otherwise be destroyed.

California Native Plant Society Rare and Endangered Plant Species

Vascular plants listed as rare or endangered by the CNPS, but which have no designated status under FESA or CESA are defined as follows:

California Rare Plant Rank

- 1A- Plants Presumed Extirpated in California and either Rare or Extinct Elsewhere
- 1B- Plants Rare, Threatened, or Endangered in California and Elsewhere

- 2A- Plants Presumed Extirpated in California, But More Common Elsewhere
- 2B- Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere
- 3- Plants about Which More Information is Needed - A Review List
- 4- Plants of Limited Distribution - A Watch List

Threat Ranks

- .1- Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
- .2- Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)
- .3- Not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known).

Local Policies

Western Riverside County MSHCP

The MSHCP is a comprehensive, multi-jurisdictional HCP focusing on conservation of species and their associated habitats in western Riverside County. The goal of the MSHCP is to maintain biological and ecological diversity within a rapidly urbanizing region.

The approval of the MSHCP and execution of the Implementing Agreement (IA) by the wildlife agencies allows signatories of the IA to issue “take” authorizations for all species covered by the MSHCP, including state- and federal-listed species as well as other identified sensitive species and/or their habitats. Each city or local jurisdiction will impose a Development Mitigation Fee for projects within their jurisdiction. With payment of the mitigation fee to the County and compliance with the survey requirements of the MSHCP where required, full mitigation in compliance with the California Environmental Quality Act (CEQA), National Environmental Policy Act (NEPA), CESA, and FESA will be granted. The Development Mitigation Fee varies according to project size and project description. The fee for industrial development is \$7,382 per acre (County Ordinance 810.2). Payment of the mitigation fee and compliance with the requirements of Section 6.0 of the MSHCP are intended to provide full mitigation under CEQA, NEPA, CESA, and FESA for impacts to the species and habitats covered by the MSHCP pursuant to agreements with the USFWS, the CDFW, and/or any other appropriate participating regulatory agencies and as set forth in the IA for the MSHCP.

There are three key agencies that regulate activities within inland streams, wetlands, and riparian areas in California. The Corps Regulatory Branch regulates activities pursuant to Section 404 of the Federal Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act. Of the State agencies, the CDFG regulates activities under the Fish and Game Code Section 1600-1616, and the Regional Board regulates activities pursuant to Section 401 of the CWA and the California Porter-Cologne Water Quality Control Act.

Federal Regulations

Section 404 of the Clean Water Act

Since 1972, the Corps and EPA have jointly regulated the filling of waters of the United States, including wetlands, pursuant to Section 404 of the CWA. The Corps has regulatory authority over the discharge of dredged or fill material into the waters of the United States under Section 404 of the CWA. The Corps and EPA define “fill material” to include any “material placed in waters of the United States where the material has the effect of: (i) replacing any portion of a water of the United States with dry land; or (ii) changing the bottom elevation of any portion of the waters of the United States.” Examples include, but are not limited to, the placement of sand, rock, clay, construction debris, wood chips, and “materials used to create any structure or infrastructure in the waters of the United States.”

In April of 2020, the Corps and the EPA provided a new definition for *waters of the United States* [Federal Register, Vol. 85, No. 77 (April 21, 2020)] which encompass:

- The territorial seas and traditional navigable waters;
- Perennial and intermittent tributaries that contribute surface water flow to such waters;
- Certain lakes, ponds, and impoundments of jurisdictional waters; and
- Wetlands adjacent to other jurisdictional waters.

Additionally, the new definition identifies 12 categories of those waters and features that are excluded from the definition of “waters of the United State, such as features that only contain water in direct response to rainfall (e.g., ephemeral features), groundwater, many ditches, prior converted cropland, and waste treatment systems. The final rule excludes from the definition of “waters of the United States” all waters or features not mentioned above. In addition to this general exclusion, the final rule specifically clarifies that waters of the United States do not include the following:

- Groundwater, including groundwater drained through subsurface drainage systems;
- Ephemeral features that flow only indirect response to precipitation, including ephemeral streams, swales, gullies, rills, and pools;
- Diffuse stormwater runoff and directional sheet flow over upland;
- Ditches that are not traditional navigable waters, tributaries, or that are not constructed in adjacent wetlands, subject to certain limitations;
- Prior converted cropland;
- Artificially irrigated areas that would revert to upland if artificial irrigation ceases;
- Artificial lakes and ponds that are not jurisdictional impoundments and that are constructed or excavated in upland or non-jurisdictional waters;

- Water-filled depressions constructed or excavated in upland or in non-jurisdictional waters incidental to mining or construction activity, and pits excavated in upland or in non-jurisdictional waters for the purpose of obtaining fill, sand, or gravel;
- Stormwater control features constructed or excavated in upland or in non-jurisdictional waters to convey, treat, infiltrate, or store stormwater runoff;
- Groundwater recharge, water reuse, and wastewater recycling structures constructed or excavated in upland or in non-jurisdictional waters; and
- Waste treatment systems.

Section 401 of the Clean Water Act

Pursuant to Section 401 of the CWA, any applicant for a federal license or permit to conduct any activity which may result in any discharge to waters of the United States must provide certification from the State or Indian tribe in which the discharge originates. This certification provides for the protection of the physical, chemical, and biological integrity of waters, addresses impacts to water quality that may result from issuance of federal permits, and helps insure that federal actions will not violate water quality standards of the State or Indian tribe. In California, there are nine Regional Water Quality Control Boards (Regional Board) that issue or deny certification for discharges to waters of the United States and waters of the State, including wetlands, within their geographical jurisdiction. The State Water Resources Control Board assumed this responsibility when a project has the potential to result in the discharge to waters within multiple Regional Boards.

State Regulations

Fish and Game Code

Fish and Game Code Sections 1600 et. seq. establishes a fee-based process to ensure that projects conducted in and around lakes, rivers, or streams do not adversely impact fish and wildlife resources, or, when adverse impacts cannot be avoided, ensures that adequate mitigation and/or compensation is provided.

Fish and Game Code Section 1602 requires any person, state, or local governmental agency or public utility to notify the CDFW before beginning any activity that will do one or more of the following:

- (1) substantially obstruct or divert the natural flow of a river, stream, or lake;
- (2) substantially change or use any material from the bed, channel, or bank of a river, stream, or lake;
or
- (3) deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into a river, stream, or lake.

Fish and Game Code Section 1602 applies to all perennial, intermittent, and ephemeral rivers, streams, and lakes in the State. CDFW's regulatory authority extends to include riparian habitat (including wetlands) supported by a river, stream, or lake regardless of the presence or absence of hydric soils and saturated soil conditions. Generally, the CDFW takes jurisdiction to the top of bank of the stream or to the outer limit of the adjacent riparian vegetation (outer drip line), whichever is greater. Notification is generally required for any project that will take place in or in the vicinity of a river, stream, lake, or their tributaries. This includes rivers or streams that flow at least periodically or permanently through a bed or channel with banks

that support fish or other aquatic life and watercourses having a surface or subsurface flow that support or have supported riparian vegetation. A Section 1602 Streambed Alteration Agreement would be required if impacts to identified CDFW jurisdictional areas occur.

Porter Cologne Act

The California *Porter-Cologne Water Quality Control Act* gives the State very broad authority to regulate waters of the State, which are defined as any surface water or groundwater, including saline waters. The Porter-Cologne Act has become an important tool in the post SWANCC and Rapanos regulatory environment, with respect to the state’s authority over isolated and insignificant waters. Generally, any person proposing to discharge waste into a water body that could affect its water quality must file a Report of Waste Discharge in the event that there is no Section 404/401 nexus. Although “waste” is partially defined as any waste substance associated with human habitation, the Regional Board also interprets this to include fill discharged into water bodies.

Appendix C - Cultural and Paleontological Report

**PHASE 1 CULTURAL AND
PALEONTOLOGICAL RESOURCECS
REPORT FOR THE FARM MARKET
PROJECT, RIVERSIDE COUNTY,
CALIFORNIA**

Prepared for:

Farm Market

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November 8, 2019

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NATIONAL ARCHAEOLOGICAL DATABASE INFORMATION

Authors: Sandra Pentney, Lauren DeOliveira and Kyle Knabb

Firm: Chambers Group, Inc.

Client/Project Proponent: Farm Market; Parmjit Singh

Report Date: November 8, 2019

Report Title: Phase 1 Cultural and Paleontological Resources Report for the Farm Market Project, Riverside County, California

Type of Study: Phase 1 Cultural and Paleontological Resources Study

New Sites: None

Updated Sites: None

USGS Quad: Sunnymead 7.5-minute quadrangle

Acreage: 2.0

Permit Numbers: N/A

Key Words: County of Riverside, City of Moreno Valley, Phase 1 Cultural and Paleontological Resources Study, CEQA, Negative Results.

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Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

SECTION 1.0 – INTRODUCTION

Chambers Group, Inc. (Chambers Group) has been contracted by Parjit Singh, owner of Farm Market, to complete a Phase 1 Cultural and Paleontological Resources Report for the Farm Market Project, which includes the construction of a gas station, canopy, commercial and restaurant space, a parking lot and landscaping. The approx. 2-acre area includes vacant land to the east and an already developed Farm Market building and parking lot to the west. The physical address of the project area is 14058 Redlands Blvd, City of Moreno Valley, Riverside County.

Chambers Group completed an archaeological literature review, archaeological and paleontological records search, Native American Sacred Land Files Search, and a field survey of the approx. 2-acre project area. This report outlines the archaeological and paleontological findings.

The following study has been conducted in accordance with the California Environmental Quality Act (CEQA).

1.1 REGULATORY FRAMEWORK

Work for this project was conducted in compliance with CEQA. The regulatory framework as it pertains to cultural resources under CEQA is detailed below.

Under the provisions of CEQA, including the CEQA Statutes (Public Resources Code [PRC] §§ 21083.2 and 21084.1), the CEQA Guidelines (Title 14 California Code of Regulations [CCR], § 15064.5), and PRC § 5024.1 (Title 14 CCR § 4850 et seq.), properties expected to be directly or indirectly affected by a proposed project must be evaluated for eligibility for listing in the California Register of Historical Resources (CRHR) (PRC § 5024.1).

The purpose of the CRHR is to maintain listings of the state’s historical resources and to indicate which properties are to be protected, to the extent prudent and feasible, from material impairment and substantial adverse change. The term *historical resources* includes a resource listed in or determined to be eligible for listing in the CRHR; a resource included in a local register of historical resources; and any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant (CCR § 15064.5[a]). The criteria for listing properties in the CRHR were expressly developed in accordance with previously established criteria developed for listing in the National Register of Historic Places (NRHP). The California Office of Historic Preservation (OHP 1995:2) regards “any physical evidence of human activities over 45 years old” as meriting recordation and evaluation.

1.1.1 California Register of Historic Resources

A cultural resource is considered “historically significant” under CEQA if the resource meets one or more of the criteria for listing on the CRHR. The CRHR was designed to be used by State and local agencies, private groups, and citizens to identify existing cultural resources within the state and to indicate which of those resources should be protected, to the extent prudent and feasible, from substantial adverse change. The following criteria have been established for the CRHR. A resource is considered significant if it:

1. is associated with events that have made a significant contribution to the broad patterns of California’s history and cultural heritage;
2. is associated with the lives of persons important in our past;
3. embodies the distinctive characteristics of a type, period, region, or method of construction, or

- represents the work of an important creative individual, or possesses high artistic values; or
4. has yielded, or may be likely to yield, information important in prehistory or history.

In addition to meeting one or more of the above criteria, historical resources eligible for listing in the CRHR must retain enough of their historic character or appearance to be able to convey the reasons for their significance. Such integrity is evaluated in regard to the retention of location, design, setting, materials, workmanship, feeling, and association.

Under CEQA, if an archeological site is not a historical resource but meets the definition of a “unique archeological resource” as defined in PRC § 21083.2, then it should be treated in accordance with the provisions of that section. A *unique archaeological resource* is defined as follows:

- An archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:
 - Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information
 - Has a special and particular quality, such as being the oldest of its type or the best available example of its type
 - Is directly associated with a scientifically recognized important prehistoric or historic event or person

Resources that neither meet any of these criteria for listing in the CRHR nor qualify as a “unique archaeological resource” under CEQA PRC § 21083.2 are viewed as not significant. Under CEQA, “A non-unique archaeological resource need be given no further consideration, other than the simple recording of its existence by the lead agency if it so elects” (PRC § 21083.2[h]).

Impacts that adversely alter the significance of a resource listed in or eligible for listing in the CRHR are considered a significant effect on the environment. Impacts to historical resources from a proposed project are thus considered significant if the project (1) physically destroys or damages all or part of a resource; (2) changes the character of the use of the resource or physical feature within the setting of the resource, which contributes to its significance; or (3) introduces visual, atmospheric, or audible elements that diminish the integrity of significant features of the resource.

SECTION 2.0 – PROJECT DESCRIPTION AND LOCATION

2.1 PROJECT DESCRIPTION

Chambers Group has been contracted by the Parmjit Singh of Farm Market, located in Riverside County, California, to complete a Phase 1 Cultural and Paleontological Resources Report for the Farm Market Project (Project), which includes the construction of a gas station, canopy, commercial and restaurant space along with a parking lot and landscaping. The project area is located at 14058 Redlands Blvd in Moreno Valley, Riverside County, California.

The purpose of this investigation is to assess the potential for significant archaeological or paleontological resources within the project area.

2.2 PROJECT LOCATION

The project area is located within the City of Moreno Valley, Riverside County, California. The approx. 2-acre project area is located at 14058 Redlands Blvd. The project area consists of vacant land on the east half of the property and a fully developed market and parking lot on the west half. The project area is bordered on the north by Alessandro Blvd, to the east by single family homes, to the west by Redlands Blvd and to the south by Kimberly Ave. Specifically, the project area is located on the U.S. Geological Survey (USGS) *Sunnymead* 7.5-minute quadrangle (Figure 1).

Regional access to the project area is provided via California State Route 60, City of Moreno Valley, Riverside County, California. Local access is provided by Redlands Blvd.

Figure 1: Project Location and Vicinity Map



Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

SECTION 3.0 – BACKGROUND

3.1 GEOLOGIC SETTING

The oldest fossils in California are from the Proterozoic Age, dating to 900 million years ago. However, no fossils from this Age are currently known to occur in Riverside County. It is thought that in this portion of Southern California, fossils earlier than the Jurassic Period may have been destroyed by the natural processes of metamorphism (geological changes in the rocks and soils). The oldest fossils actually found in Riverside County date from the Late Jurassic Period (150 million years ago). By the Late Cretaceous Period, at the end of the Age of Dinosaurs, fossils found include ammonites, clams and giant oysters (County of Riverside 2003).

The Cenozoic Era, the Age of Mammals, is divided into the Tertiary Period (65 million years to 2 million years) and the Quaternary Period, which includes the Pleistocene (2 million years to 10 thousand years) and the Holocene (10,000 years ago to present). The Tertiary Period records depositional events where continental sediments mixed with marine sediments. These important fluctuations in sea level are recorded in the Elsinore Fault Zone in western Riverside County and in the Salton Trough in eastern Riverside County. Riverside County has yielded notable finds of large fossils from the Tertiary Period including whales, sharks, primitive elephants and oreodonts, camels and horses (County of Riverside 2003).

During the Quaternary Epoch, Riverside County was affected by increased Pleistocene rainfall which filled basins and fault zones and turned depressions into lakes. The influx of new sediment buried remains of large and small animals. Deposition of fossiliferous sediment occurred along the margins of the Salton Sea and along the Colorado River. The climate changed drastically ten thousand years ago from the end of the wet Pleistocene to the very dry Holocene. The record of changing plants and animals is preserved as mummified samples in the nests built by pack rats (County of Riverside 2003).

3.2 PALEONTOLOGICAL ENVIRONMENT

Riverside County has an extensive record of fossil life. The record starts in Jurassic times, 150 million years ago, with diverse marine mollusks. The oldest Tertiary flora in Southern California is found east of Lake Elsinore and dates to around 60 million years ago. Fossils of 23 million-year-old oreodonts and camels, as well as camel tracks, were found in the Orocopia Mountains in central Riverside County (Bortugno and Spittler 1986; County of Riverside 2003).

Marine advances are recorded in Corona and the Salton Trough. Marine sandstones of the Imperial Formation in the Salton Trough are found as far northwest as Cabazon. Three million years ago, near the present Interstate 15/Highway 91 interchange, a white sand beach lapped at the edge of the Pacific Ocean. The subsequent Ice Ages left fossils of giant sloths, mammoths, camels and bison that were preyed upon by giant bear, American lion and sabercats (County of Riverside 2003).

3.3 PREHISTORY

It is generally believed that human occupation of southern California began at least 10,000 years before present (BP). The archaeological record indicates that between approximately 10,000 and 6,000 years BP, a predominantly hunting and gathering economy existed, characterized by archaeological sites containing numerous projectile points and butchered large animal bones. The most heavily exploited species were those species still alive today, such as deer. Although small animal bones and plant grinding tools are

rarely found within archaeological sites of this period, small game and vegetal foods were probably exploited (Wallace 1978).

The three major periods of prehistory for the greater Los Angeles Basin region have been refined by recent research using radiocarbon dates from archaeological sites in coastal southern California (Koerper and Drover 1983; Mason and Peterson 1994):

- Millingstone Period (6,000–1,000 B.C., or about 8,000–3,000 years ago)
- Intermediate Period (1,000 B.C.–A.D. 650, or 3,000–1,350 years ago)
- Late Prehistoric Period (A.D. 650–about A.D. 1800, or 1,350–200 years ago)

Around 6,000 years BP, a shift in focus from hunting toward a greater reliance on vegetal resources occurred. Archaeological evidence of this trend consists of a much greater number of milling tools (e.g., metates and manos) for processing seeds and other vegetable matter (Wallace 1978). This period, known to archaeologists as the Millingstone Period, was a long period of time characterized by small, mobile groups that likely relied on a seasonal round of settlements that included both inland and coastal residential bases. Seeds from sage and grasses, rather than acorns, provided calories and carbohydrates. Faunal remains from sites dating to this period indicate similar animals were hunted. Inland Millingstone sites are characterized by numerous manos, metates, and hammerstones. Shell middens are common at coastal Millingstone sites. Coarse-grained lithic materials, such as quartzite and rhyolite, are more common than fine-grained materials in flaked stone tools from this time. Projectile points are found in archaeological sites from this period, but they are far fewer in number than from sites dating to before 6,000 years BP. An increase in the size of groups and the stability of settlements is indicated by deep, extensive middens at some sites from this period (Wallace 1978).

In sites post-dating roughly 3,000 years BP, archaeological evidence indicates the reliance on both plant gathering and hunting continued but was more specialized and locally adapted to particular environments. Mortars and pestles were added to metates and manos for grinding seeds and other vegetable material. Chipped-stone tools became more refined and specialized, and bone tools were more common. During this period, new peoples from the Great Basin began entering southern California. These immigrants, who spoke a language of the Uto-Aztecan linguistic stock, seem to have displaced or absorbed the earlier population of Hokan-speaking peoples. The exact time of their entry into the region is not known; however, they were present in southern California during the final phase of prehistory. During this period, population densities were higher than before, and settlement became concentrated in villages and communities along the coast and interior valleys (Erlandson 1994; McCawley 1996). During the Intermediate Period, mortars and pestles appeared, indicating the beginning of acorn exploitation. Use of the acorn – a high-calorie, storable food source – probably allowed greater sedentism and facilitated an increased level of social organization. Large projectile points from archaeological sites of this period indicate that the bow and arrow, a hallmark of the Late Prehistoric Period, had not yet been introduced; and hunting was likely accomplished using the *atlatl* (spear thrower) instead. Settlement patterns during this time are not well understood. The semi-sedentary settlement pattern characteristic of the Late Prehistoric Period may have begun during the Intermediate Period, although territoriality may not yet have developed because of lower population densities. Regional subcultures also started to develop, each with its own geographical territory and language or dialect (Kroeber 1925; McCawley 1996; Moratto 1984). These were most likely the basis for the groups encountered by the first Europeans during the

eighteenth century (Wallace 1978). Despite the regional differences, many material culture traits were shared among groups, indicating a great deal of interaction (Erlandson 1994). The Late Prehistoric Period is better understood than earlier periods largely through ethnographic analogy made possible by ethnographic and anthropological research of the descendants of these groups in the late nineteenth and early twentieth centuries.

3.4 ETHNOGRAPHY AND ARCHAEOLOGY

The Project area was occupied by the Luiseno and Cahuilla people. Following is a brief ethnographic and archaeological summary of the Luiseno and Cahuilla.

3.4.1 Luiseno

When the Spanish arrived in southern California, the Project area was occupied by Takic speaking Native Americans known to the Spanish as the Luiseño. Luiseño territory is thought to have comprised some 1,500 square miles (3,890 square kilometers) of coastal and interior southern California (White 1963). The Luiseño speak a language that is placed within the Cupan group of the Takic family of the Uto-Aztecan stock (Shipley 1978) also known as Southern California Shoshonean (Kroeber 1925).

Permanent houses of the Luiseño were normally covered with bark, tule, or stems and then covered with a layer of earth. Permanent structures were often semi-subterranean and built over an excavated area sometime up to 2 feet deep (Kroeber 1925). The Luiseño had separate village groups, each strategically located within a diverse ecological zone that allowed for fishing, hunting, and gathering. Villages were normally sheltered on the sides of slopes or in caves or canyons near fresh water sources (Bean and Shippek 1978).

The Luiseño were predominately a hunter-gatherer society. The Luiseño exploited deer, rabbit, squirrels and birds like quail, doves and ducks. Luiseño living along the coastal regions often fished and gathered shellfish such as abalone. Acorns were considered a main staple of the Luiseño. Villages were located near fresh water sources for drinking water but also to facilitate the processing of acorns by a technique called leaching. Manzanita, sunflower, chia, lemon berry and prickly pear were also high on the list of gathered subsistence. (Bean and Shippek 1978).

Kroeber (1925) estimated a population of only 5,000 pre-contact Luiseño. White (1963) and Shippek (1977) estimated that, at the time of Spanish contact, there were on the order of 50 Luiseño rancherias with an average population of some 200 people, for a total Luiseño population of about 10,000. This number rapidly decreased after contact, with the introduction of new diseases for which the native population lacked immunity.

3.4.2 Cahuilla

The project area currently falls within the ethnographic territory of the Cahuilla, whose ancestors may have entered this region of Southern California approximately 3,000 years ago (Moratto 1984). The Cahuilla ancestral territory is located near the geographic center of Southern California and varied greatly topographically and environmentally, ranging from forested mountains to desert areas. Natural boundaries such as the Colorado Desert provided the Cahuilla separate territory from the neighboring Mojave, Ipai, and Tipai. In turn, mountains, hills, and plains separated the Cahuilla from the adjacent Luiseno, Gabeielino and the Serrano (Bean 1978).

The Cahuilla relied heavily on the exploitation and seasonal availability of faunal and floral resources through a pattern of residential mobility that emphasized hunting and gathering. Important floral species used in food, for manufacturing of products, and/or for medicinal uses primarily included acorns, mesquite and screw beans, piñon nuts, and various cacti bulbs (Bean 1978). Coiled-ware baskets were common and used for a variety of tasks including food preparation, storage, and transportation (Bean 1978).

Networks of trails linked villages and functioned as hunting, trading, and social conduits. Trade occurred between the Cahuilla and tribes such as the Gabrieleno as far west as Santa Catalina and the Pima as far east as the Gila River. Trades of both goods and technologies were frequently exchanged between the Cahuilla and nearby Serrano, Gabrielino, and Luiseño cultural groups (Bean 1978).

The Cahuilla are believed to have first come into contact with Europeans prior to the Juan Bautista de Anza expedition in 1774; however, little direct contact was established between the Cahuilla and the Spanish except for those baptized at the Missions San Gabriel, San Luis Rey, and San Diego (Bean 1978). Following the establishment of several *asistencias* near the traditional Cahuilla territories, many Spanish cultural forms — especially agriculture and language — were adopted by the Cahuilla people (Bean 1978; Lech 2012).

Through the Rancho and American periods, the Cahuilla continued to retain their political autonomy and lands despite more frequent interactions with European-American immigrants. In 1863, a large number of the population were killed by a sweeping smallpox epidemic that affected many of the tribal groups in Southern California. The first reservations established in Riverside County ca. 1865 saw many of the Cahuilla remaining on their traditional lands. After 1891, however, all aspects of the Cahuilla economic, political, and social life were closely monitored by the Federal Government; a combination of missionaries and government schools drastically altered the Cahuilla culture (Bean 1978).

3.5 HISTORY

The first significant European settlement of California began during the Spanish Period (1769 to 1821) when 21 missions and four presidios were established between San Diego and Sonoma. Although located primarily along the coast, the missions dominated economic and political life over the greater California region. The purpose of the missions was primarily for political control and forced assimilation into Spanish society and Catholicism of the Native American population, along with economic support to the presidios (Castillo 1978).

In the 1700s, due to pressures from other colonizers (Russians, French, British), New Spain decided that a party should be sent north with the idea of founding both military presidios and religious missions in Alta California to secure Spain's hold on its lands. The aim of the party was twofold. The first was the establishment of presidios, which would give Spain a military presence within its lands. The second was the establishment of a chain of missions along the coast slightly inland, with the aim of Christianizing the native population. By converting the native Californians, they could be counted as Spanish subjects, thereby bolstering the colonial population within a relatively short time. (Lech 2012)

The party was led by Gaspar de Portolá and consisted of two groups; one would take an overland route, and one would go by sea. All parties were to converge on San Diego, which would be the starting point for the chain of Spanish colonies. What became known as the Portolá Expedition set out on March 24, 1769. Portolá, who was very loyal to the crown and understood the gravity of his charge, arrived in what would become San Diego on July 1, 1769. Here, he immediately founded the presidio of San Diego. Leaving one

group in the southern part of Alta California, Portolá took a smaller group and began heading north to his ultimate destination of Monterey Bay. Continuing up the coast, Portolá established Monterey Bay as a Spanish possession on June 3, 1770, although it would take two expeditions to accomplish this task. Having established the presidios at San Diego and Monterey, Portolá returned to Mexico. During the first four years of Spanish presence in Alta California, Father Junípero Serra, a member of the Portolá expedition and the Catholic leader of the new province, began establishing what would become a chain of 21 coastal missions in California. The first, founded concurrently at San Diego with the presidio, was the launching point for this group. During this time, four additional missions (San Carlos Borromeo de Carmelo, San Antonio de Padua, San Gabriel Arcángel, and San Luis Obispo de Tolosa) were established (Lech 2012).

The Mexican Period (1821-1848) began with the success of the Mexican Revolution in 1821, but changes to the mission system were slow to follow. When secularization of the missions occurred in the 1830s, their vast land holdings in California were divided into large land grants called ranchos. The Mexican government granted ranchos throughout California to Spanish and Hispanic soldiers and settlers (Castillo 1978; Cleland 1941).

In 1848, The Treaty of Guadalupe Hidalgo ended the Mexican-American War and marked the beginning of the American Period (1848 to present). The discovery of gold that same year sparked the 1849 California Gold Rush, bringing thousands of miners and other new immigrants to California from various parts of the United States, most of whom settled in the north. For those settlers who chose to come to southern California, much of their economic prosperity was fueled by cattle ranching rather than by gold. This prosperity, however, came to a halt in the 1860s as a result of severe floods and droughts, as well as legal disputes over land boundaries, which put many ranchos into bankruptcy (Castillo 1978; Cleland 1941).

Moreno Valley was not settled until the late 1880s. Prior to that, Moreno Valley served as a pass through for settlers traveling from northern Mexico to the various mission settlements via the Anza trail. The trail passes through Moreno Valley, Perris Valley and the San Jacinto Valley. Moreno Valley began with the founding of the Moreno and Alessandro settlements in the late 1880s. The Moreno settlement was established around the present-day intersection of Redlands Blvd and Alessandro Blvd. The settlement of Alessandro was originally within the boundary of present-day March Air Reserve Base (City of Moreno Valley 2006).

Grains and fruit were established early on to encourage settlement of the area and a water reservoir and aqueduct were built by Frank Brown in 1891 to deliver water to the settlement of Moreno. The settlers of the valley wanted to name the town after Mr. Brown, but he declined. So, the town was named “Moreno”, the Spanish word for brown. Unfortunately, a legal dispute over water rights and a significant drought stopped the flow of water to the settlement shortly after the aqueduct was built. Some farmers turned to dry farming, but many farmers moved out of the valley as their crops failed (City of Moreno Valley 2006; Ellis 2013).

Well drilling along with the construction of March Air Force Base in 1918 sparked an increase in new development. Expansion of the Air Force Base in the 1940s allowed the communities of Edgemont, Sunnymead, and Moreno to be constructed within the valley. In the 1950s, the Eastern Municipal Water District included Moreno Valley in its service area providing a more reliable water source for agricultural and residential development. The community grew at a rapid rate. In 1984, Moreno Valley was incorporated, and population reached over 118,000 residents in 1990. Moreno Valley is the second largest

city in Riverside County, encompassing 51.4 square miles and currently has a population of approximately 209,000 residents (City of Moreno Valley 2006).

SECTION 4.0 – SOURCES CONSULTED

A records search was conducted on October 10, 2019, by Chambers Group Archaeologist, Lauren DeOliveira, at the Eastern Information Center (EIC) located at the University of California, Riverside (Appendix A). The records search provided information on all documented cultural resources and previous archaeological investigations within 0.5-mile of the project area. Resources consulted during the records search included the National Register of Historic Places (NRHP), California Historical Landmarks, California Points of Historical Interest, and the California State Historic Resources Inventory. Additionally, historic aerial photographs of the project area were reviewed in-house to determine the presence of any historic structures. Results of the records search and additional research are detailed below.

4.1 REPORTS WITHIN THE STUDY AREA

Based upon the records search conducted at the EIC, 11 cultural resource studies have been completed previously within the 0.5-mile records search radius. None of the 11 previous studies were within the current project area. Details of these studies are found in Table 1.

Table 1: Previous Cultural Resource Studies within Study Area

Report Number	Year	Author	Title	Resources
RI-00182	1975	Richard A. Weaver	Environmental Impact Evaluation: Archaeology of Brodiaea Avenue, PI 984, Water Systems Addition, Riverside County, California	33-000857
RI-01843	1984	Scientific Resource Surveys, Inc.	Cultural Resource Survey Report on Wolfskill Ranch	33-000012, 33-000021, 33-000202, 33-000419, 33-000420, 33-000421, 33-000464, 33-000530, 33-000531, 33-000532, 33-000533, 33-000534, 33-000535, 33-000536, 33-000537, 33-000538, 33-000539, 33-000540, 33-000541, 33-000542, 33-000543, 33-000544, 33-000608, 33-000609,

Phase 1 Cultural and Paleontological Resources Report for the Farm Market Project,
Riverside County, California

Report Number	Year	Author	Title	Resources
				33-000610, 33-000715, 33-002829, 33-002867, 33-002950, 33-002951, 33-002952, 33-002953, 33-002954, 33-002955, 33-002956, 33-002957, 33-002958, 33-002959, 33-002960, 33-002961, 33-002962, 33-002963, 33-002964, 33-002965, 33-002966, 33-002967, 33-002968, 33-002969, 33-002993, 33-002994, 33-002995, 33-002996
RI-01893	1984	Salpas, Jean	An Archaeological Assessment of Parcel 20223	N/A
RI-02171	1987	McCarthy, Daniel	Cultural Resources Inventory for the City of Moreno Valley, Riverside County, California	33-000361, 33-000395, 33-000497, 33-000857, 33-000860, 33-001063, 33-001064, 33-003223, 33-003224, 33-003225, 33-003226, 33-003227, 33-003228, 33-003229, 33-003230, 33-003231, 33-003232, 33-003233,

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Phase 1 Cultural and Paleontological Resources Report for the Farm Market Project,
Riverside County, California

Report Number	Year	Author	Title	Resources
				33-003234, 33-003235, 33-003236, 33-003237, 33-003238, 33-003239, 33-003240, 33-003241, 33-003242, 33-003243, 33-003244, 33-003245, 33-003246, 33-003247, 33-003248, 33-003249, 33-003250, 33-003254, 33-003258, 33-003259, 33-003260, 33-003261, 33-003262, 33-003263, 33-003264, 33-003265, 33-003266, 33-003267, 33-003268, 33-003269, 33-003270, 33-003271, 33-003272, 33-003273, 33-003304, 33-003305, 33-003306, 33-003341, 33-003342, 33-003343, 33-003344, 33-003345, 33-003346, 33-003347, 33-003351, 33-003352, 33-003353

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*Phase 1 Cultural and Paleontological Resources Report for the Farm Market Project,
Riverside County, California*

Report Number	Year	Author	Title	Resources
RI-08368	2009	McKenna, Jeanette A.	Addendum Study: A Phase I Cultural Resources Survey of Two Alternative Sewer Pipeline Alignments for the Moreno Valley Unified School District Sites, City of Moreno Valley, Riverside County, California.	33-001064, 33-014952
RI-08681	2011	Jay K. Sander	Archaeological Survey Report for Southern California Edison's Grid Reliability and Maintenance Project: Moreno Valley, Riverside County, California	N/A
RI-08802	2012	Bai "Tom" Tang, Michael Hogan, Deirdre Encarnacion, and Daniel Ballester	Phase I Archaeological Assessment: Moreno Master Drainage Plan Revision	N/A
RI-09080	2014	Bai "Tom" Tang, Michael Hogan, Deirdre Encarnacion, and Daniel Ballester	Phase I Archaeological Assessment Tentative Tract Map No.36739 City of Moreno Valley, Riverside County, California	N/A
RI-09225	2014	Michael Hogan	Historical/Archaeological Resources Investigation; Tentative Tract Map 33222; City of Moreno Valley, Riverside County, California	N/A
RI-09667	2016	Alexis Green	Addendum to FCC Form 620: Maltby/EnSite #25566, 14058 Redlands Blvd., Moreno Valley, Riverside County. CA 92555, EBI Project # 6115002992, FCC E-106 #006956057, CASHPO:	N/A
RI-10698	2015	Gabriel Ocampo	Cultural Resources Survey Maltby / Ensite #25566 (284949) 14058 Redlands Boulevard, Moreno Valley, Riverside County, California 92555	33-002777

4.2 PREVIOUSLY RECORDED CULTURAL RESOURCES WITHIN THE STUDY AREA

Based upon the records search conducted at the EIC, 2 previously recorded cultural resources were recorded within the 0.5-mile records search radius, as shown in Table 2. None of the previously recorded resources are within the project area. Additionally, historic aerial photographs and topographic maps of the project area, dating to the early 1960s, were reviewed and indicated that the vacant area in the east half of the project area did not contained any structures or buildings.

Table 2: Previously Recorded Cultural Resources within the Study Area

Primary Number	Trinomial	Resource Name	Site Description
P-33-002776	CA-RIV-2776	N/A	Prehistoric milling slicks
P-33-002777	CA-RIV-2777	N/A	Prehistoric milling slicks

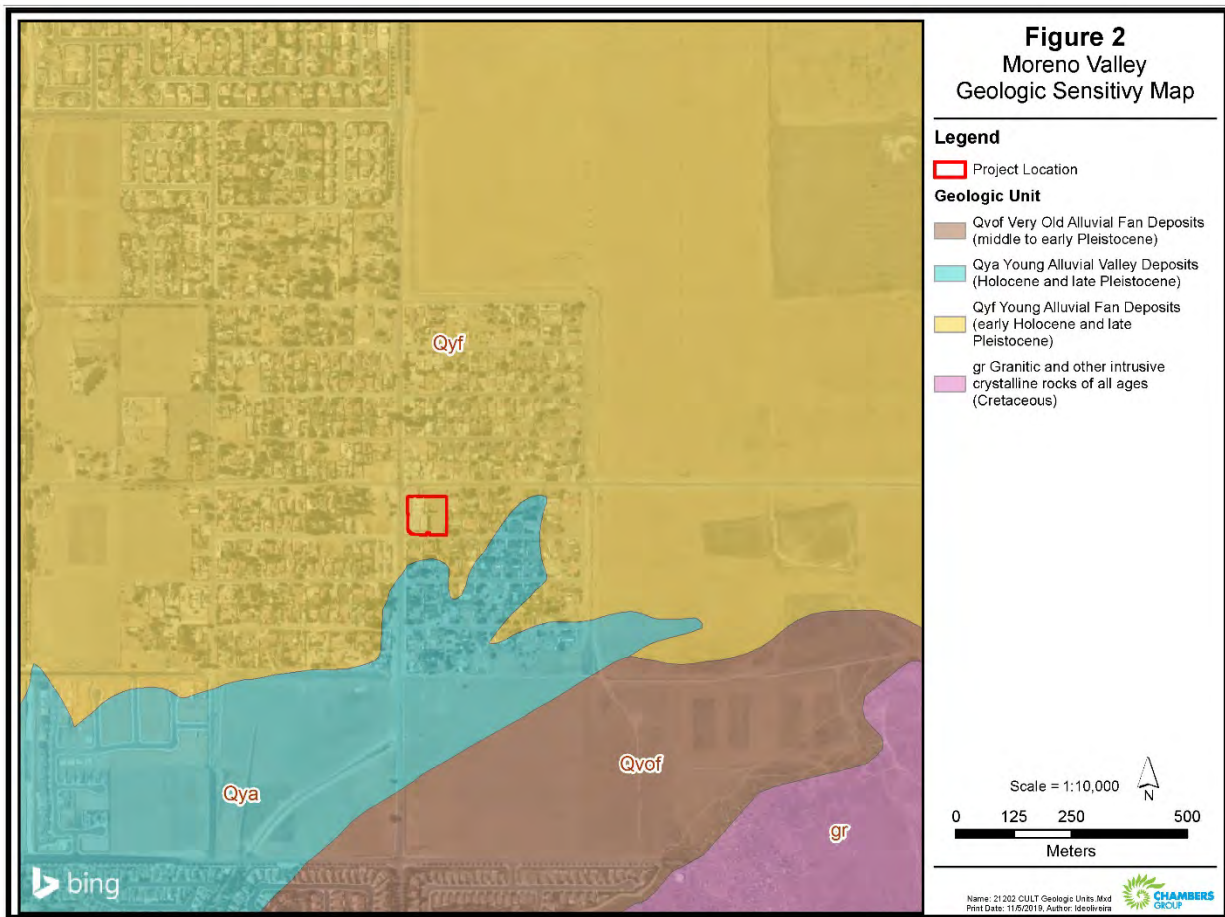
4.3 PALEONTOLOGICAL RECORD SEARCH

Prior to the survey of the project area, a paleontological resources literature and records search was conducted by staff at the Western Science Center on November 8, 2019. This search included the entire project area with an additional 1-mile radius. This search included a review of geological maps covering the project footprint to determine the fossil-bearing rock units underlying the project area. The objective of this records search was to identify fossil specimens or unique geological formations reported within the project area or surrounding 1-mile vicinity. Research also included a review of published and unpublished reports relevant to the paleontology and geology of the project area.

The results indicate the geologic units underlying the project area are entirely of young alluvial fan deposits from the Late Pleistocene to Holocene period. Pleistocene alluvial units are considered to be of high paleontological potential.

The Western Science Center does not have localities within the project area or within a 1 mile radius but does have numerous fossil localities within 2 miles that presented paleontological finds within similar alluvial mapped units including those associated with the Aldi Distribution Project in Moreno Valley. Fossils recovered from this project include specimen associated with large Pleistocene fauna including Giant Ground Sloth (Appendix C).

Figure 2: Geologic Units within Project Area



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4.4 NATIVE AMERICAN HERITAGE COMMISSION SACRED LAND FILE SEARCH

On October 2, 2019, Chambers Group requested that the Native American Heritage Commission (NAHC) conduct a search of its Sacred Lands File to determine if cultural resources significant to Native Americans have been recorded in the project footprint and/or buffer area. On October 16, 2019, Chambers Group received a response from NAHC stating that the search of its Sacred Lands File did not indicate the presence of Native American cultural resources within the project area or surrounding vicinity. The NAHC provided their list of Native American tribal governments to contact, if the City of Moreno Valley chooses, which included representative from 14 tribes. The 14 Native American tribes identified include the Agua Caliente Band of Cahuilla Indians, Augustine Band of Cahuilla Mission Indians, Cabazon Band of Mission Indians, Cahuilla Band of Indians, Los Coyotes Band of Cahuilla and Cupeno Indians, Morongo Band of Mission Indians, Pechanga Band of Luiseno Indians, Ramona Band of Cahuilla, San Fernando Band of Mission Indians, San Manuel Band of Mission Indians, Santa Rosa Band of Cahuilla Indians, Serrano Nation of Mission Indians, Soboba Band of Luiseno Indians, and Torres-Martinez Desert Cahuilla Indians. Because the City of Moreno Valley is leading the Assembly Bill (AB) 52 consultation process, if required, Chambers Group did not send consultation letters to the affiliated tribes. A copy of the NAHC Sacred Land Files Search and contact list is included in Appendix B.

SECTION 5.0 – FIELD METHODS

Chambers Group survey teams are trained in established field methods for cultural resources deemed appropriate for each project. Cultural materials encountered may include prehistoric artifacts (e.g., flaked stone tools, tool-making debris, stone milling tools), historic-period artifacts (e.g., metal, glass, ceramics), sediment discoloration that might indicate the presence of a cultural midden, as well as depressions and other features indicative of the former presence of structures or buildings (e.g., post holes, foundations).

On October 10, 2019, Chambers Group archaeologist Lauren DeOliveira, completed a pedestrian level survey of the vacant portion of the project site and a reconnaissance level survey of the developed portion of the site. The pedestrian level survey in the eastern half of the site was completed using transects spaced at no more than 15 meters apart.

The archaeologist examined exposed ground surface for artifacts (e.g., flaked stone tools, tool-making debris, milling tools, ceramics), ecofacts (e.g., marine shell and bone), soil discoloration that might indicate the presence of a cultural midden, and features indicative of the former presence of structures or buildings (e.g., standing exterior walls, postholes, foundations) or historic debris (e.g., metal, glass, ceramics). Ground disturbances such as burrows were visually inspected for both cultural resources and paleontological resources.

SECTION 6.0 – RESULTS OF ARCHAEOLOGICAL AND PALEONTOLOGICAL INVESTIGATIONS

The project area is located within the City of Moreno Valley, Riverside County, California. The approx. 2.0-acre project area is located at 14058 Redlands Blvd. The project area is disturbed and highly developed in the western half. An existing Farm Market building with concrete driveway, parking lot, and cell phone tower antenna are within the western half of the project area. The eastern half of the property is a vacant lot that has been recently disked and cleared of weeds. Concrete, wood and modern debris was observed. Overall ground visibility was high in the eastern half of the property (95%). Soil in the area primarily consisted of light brown silty clay.

No historic, prehistoric resources or paleontological resources were identified as a result of the field survey.

SECTION 7.0 – STUDY FINDINGS AND RECOMMENDATIONS

Chambers Group completed an archaeological and paleontological literature review, records search, Native American Sacred Land Files Search, and a field survey of 2-acre project location. The work was performed under Chambers Group’s contract with Parmjit Singh of Farm Market. The main goal of this archaeological and paleontological investigation was to gather and analyze information needed to determine if the project could impact cultural or paleontological resources.

7.1 PALEONTOLOGICAL RESOURCES STUDY FINDINGS AND RECOMMENDATIONS

The results indicate the geologic units underlying the project area are entirely of young alluvial fan deposits from the Late Pleistocene to Holocene period. Pleistocene alluvial units are considered to be of high paleontological potential.

The Western Science Center does not have localities within the project area or within a 1-mile radius but does have numerous fossil localities within 2 miles that presented paleontological finds within similar alluvial mapped units including those associated with the Aldi Distribution Project in Moreno Valley. Any fossils recovered from the project area would be considered scientifically significant.

Since the young alluvial fan deposits of the Late Pleistocene to Holocene are considered paleontologically sensitive, it is recommended that a qualified paleontologist be retained to spot check construction excavations that would impact those units. The paleontologist will be able to recommend increasing or decreasing monitoring activities based on the sub-surface findings.

7.2 CULTURAL RESOURCES STUDY FINDINGS AND RECOMMENDATIONS

The NAHC Sacred Lands File search did not identify any sacred sites or tribal cultural resources within the search radius. The cultural record search did not identify any previous cultural resources studies of the project area and no previously recorded archaeological resources were identified within the project boundary. No cultural resources were identified within the project area as a result of the record search and field survey. The lack of resources identified in the record search and field survey is not indicative of an absence of resources.

Because the Project is in an area inhabited both prehistorically and historically, as well as being on an alluvial fan, there is the potential to encounter buried archaeological deposits. A Secretary of the Interior qualified archaeologist is recommended to spot check construction excavations within undisturbed soil to determine the presence or absence of cultural resources. The qualified archaeologist will then be able to recommend increasing or decreasing monitoring activities based on sub-surface findings.

In the event of an unanticipated cultural resource(s) discovery, the following guidelines are recommended.

In the event that unanticipated cultural resources are encountered during ground-disturbing activities, a qualified archaeologist shall be contacted to assess the significance of the find. In the case that previously undiscovered resources are identified during construction activities, excavations within 50 feet of the find shall be temporarily halted or diverted. If the qualified archaeologist determines the find to be significant, construction activities can resume after the find is assessed and mitigated accordingly. It is also recommended that further recordation and documentation of this Project and the initial findings be completed prior to any ground-disturbing construction activities.

In the event that the discovery of human remains occurs during ground-disturbing activities, the following regulations must be followed. California State law (California Health and Safety Code 7050.5) require a defined protocol if human remains are discovered in the state of California regardless if the remains are modern or archaeological. Upon discovery of human remains, all work within a minimum of 200 feet of the remains must cease immediately, and the County Coroner must be notified. The appropriate land manager/owner or the site shall also be notified of the discovery. If the remains are located on federal lands, the federal land manager(s), federal law enforcement, and/or federal archaeologist should also be notified.

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Figure 3: Overview of project area. Looking southwest.



Figure 4: Overview of project area. Looking northwest.

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Figure 5: Overview of project area. Looking southeast.



Figure 6: Overview of project area. Looking south.



Figure 7: Overview of project area. Looking northeast.



Figure 8: Overview of soils in project area. Looking east.

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APPENDIX A – CONFIDENTIAL RECORD SEARCH RESULTS

APPENDIX B – NAHC SACRED LAND FILES SEARCH

NATIVE AMERICAN HERITAGE COMMISSION
Cultural and Environmental Department
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691 Phone: (916) 373-3710
Email: nahc@nahc.ca.gov
Website: <http://www.nahc.ca.gov>



October 16, 2019

Lauren DeOliveira
Chambers Group, Inc.

VIA Email to: ldeoliveira@chambersgroupinc.com

RE: 21202 Farm Market Cultural and Paleo Phase 1 Project, Riverside County

Dear Ms. DeOliveira:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. However, the absence of specific site information in the SLF does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance, we can assure that our lists contain current information. If you have any questions or need additional information, please contact me at my email address: Andrew.Green@nahc.ca.gov.

Sincerely,

A handwritten signature in blue ink that reads "Andrew Green".

Andrew Green
Staff Services Analyst

Attachment

Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Native American Heritage Commission
Native American Contact List
Riverside County
10/16/2019

**Agua Caliente Band of Cahuilla
Indians**

Patricia Garcia-Plotkin, Director
5401 Dinah Shore Drive
Palm Springs, CA, 92264
Phone: (760) 699 - 6907
Fax: (760) 699-6924
ACBCI-THPO@aguacaliente.net

Cahuilla

**Los Coyotes Band of Cahuilla
and Cupeño Indians**

Shane Chapparosa, Chairperson
P.O. Box 189
Warner Springs, CA, 92086-0189
Phone: (760) 782 - 0711
Fax: (760) 782-0712

Cahuilla

**Agua Caliente Band of Cahuilla
Indians**

Jeff Grubbe, Chairperson
5401 Dinah Shore Drive
Palm Springs, CA, 92264
Phone: (760) 699 - 6800
Fax: (760) 699-6919

Cahuilla

**Morongo Band of Mission
Indians**

Robert Martin, Chairperson
12700 Pumarra Road
Banning, CA, 92220
Phone: (951) 849 - 8807
Fax: (951) 922-8146
dtorres@morongo-nsn.gov

Cahuilla
Serrano

**Augustine Band of Cahuilla
Mission Indians**

Amanda Vance, Chairperson
P.O. Box 846
Coachella, CA, 92236
Phone: (760) 398 - 4722
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Cahuilla

**Morongo Band of Mission
Indians**

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Manager
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Banning, CA, 92220
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Fax: (951) 922-8146
dtorres@morongo-nsn.gov

Cahuilla
Serrano

**Cabazon Band of Mission
Indians**

Doug Welmas, Chairperson
84-245 Indio Springs Parkway
Indio, CA, 92203
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Fax: (760) 347-7880
jstapp@cabazonindians-nsn.gov

Cahuilla

**Pechanga Band of Luiseno
Indians**

Mark Macarro, Chairperson
P.O. Box 1477
Temecula, CA, 92593
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Fax: (951) 695-1778
epreston@pechanga-nsn.gov

Luiseno

Cahuilla Band of Indians

Daniel Salgado, Chairperson
52701 U.S. Highway 371
Anza, CA, 92539
Phone: (951) 763 - 5549
Fax: (951) 763-2808
Chairman@cahuilla.net

Cahuilla

**Pechanga Band of Luiseno
Indians**

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Luiseno

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed 21202 Farm Market Cultural and Paleo Phase 1 Project, Riverside County.

Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

**Native American Heritage Commission
Native American Contact List
Riverside County
10/16/2019**

Ramona Band of Cahuilla

Joseph Hamilton, Chairperson
P.O. Box 391670
Anza, CA, 92539
Phone: (951) 763 - 4105
Fax: (951) 763-4325
admin@ramona-nsn.gov

Cahuilla

**Santa Rosa Band of Cahuilla
Indians**

Steven Estrada, Chairperson
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Anza, CA, 92539
Phone: (951) 659 - 2700
Fax: (951) 659-2228
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nsn.gov

Cahuilla

Ramona Band of Cahuilla

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Coordinator
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Fax: (951) 763-4325
jgomez@ramona-nsn.gov

Cahuilla

**Serrano Nation of Mission
Indians**

Wayne Walker, Co-Chairperson
P. O. Box 343
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serranonation1@gmail.com

Serrano

**San Fernando Band of Mission
Indians**

Donna Yocum, Chairperson
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Phone: (503) 539 - 0933
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ddyocum@comcast.net

Kitanemuk
Vanyume
Tataviam

**Serrano Nation of Mission
Indians**

Mark Cochrane, Co-Chairperson
P. O. Box 343
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Phone: (909) 528 - 9032
serranonation1@gmail.com

Serrano

**San Manuel Band of Mission
Indians**

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26569 Community Center Drive
Highland, CA, 92346
Phone: (909) 864 - 8933
Fax: (909) 864-3370
lclauss@sanmanuel-nsn.gov

Serrano

**Soboba Band of Luiseno
Indians**

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jontiveros@soboba-nsn.gov

Cahuilla
Luiseno

**Santa Rosa Band of Cahuilla
Indians**

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Anza, CA, 92539
Phone: (951) 659 - 2700
Fax: (951) 659-2228
mercedes.estrada@santarosacah
uilla-nsn.gov

Cahuilla

**Soboba Band of Luiseno
Indians**

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Fax: (951) 654-4198
jontiveros@soboba-nsn.gov

Cahuilla
Luiseno

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Native American Heritage Commission
Native American Contact List
Riverside County
10/16/2019

1.c

**Torres-Martinez Desert Cahuilla
Indians**

Michael Mirelez, Cultural
Resource Coordinator
P.O. Box 1160
Thermal, CA, 92274
Phone: (760) 399 - 0022
Fax: (760) 397-8146
mmirelez@tmdci.org

Cahuilla

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This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed 21202 Farm Market Cultural and Paleo Phase 1 Project, Riverside County.

**APPENDIX C – WESTERN SCIENCE CENTER PALEONTOLOGICAL RECORD SEARCH
RESULTS**



WESTERN SCIENCE CENTER

Chambers Group
 Lauren DeOliveira
 5 Hutton Centre Dr.
 Santa Ana, CA 92707

November 8, 2019

Dear Ms. DeOliveira,

This letter presents the results of a record search conducted for the Farm Market Project in the city of Moreno Valley, Riverside County, California. The project site is located north of Kimberly Avenue, south Alessandro Boulevard, and east of Redlands Boulevard in section 13 on the Sunnymead, CA USGS 7.5 minute quadrangle.

The geologic units underlying this project are mapped entirely as young alluvial fan deposits dating from the Late Pliocene to Holocene period (Morton & Matti, 1997). Pleistocene alluvial units are considered to be of high paleontological sensitivity. The Western Science Center does not have localities within the project area or within a 1 mile radius, but does have numerous fossil localities within 2 miles that presented paleontological finds within similar alluvial mapped units including those associated with the Aldi Distribution Project in Moreno Valley. Fossils recovered from this project include specimen associated with large Pleistocene fauna including Giant Ground Sloth.

Any fossils recovered from the project area would be scientifically significant. Excavation activity associated with development of the project area would impact the paleontologically sensitive Late Pleistocene units and it is the recommendation of the Western Science Center that a paleontological resource mitigation program be put in place to monitor, salvage, and curate any recovered fossils associated with the current study area.

If you have any questions, or would like further information about the Aldi Distribution Project, please feel free to contact me at dradford@westerncentermuseum.org

Sincerely,




Darla Radford
 Collections Manager

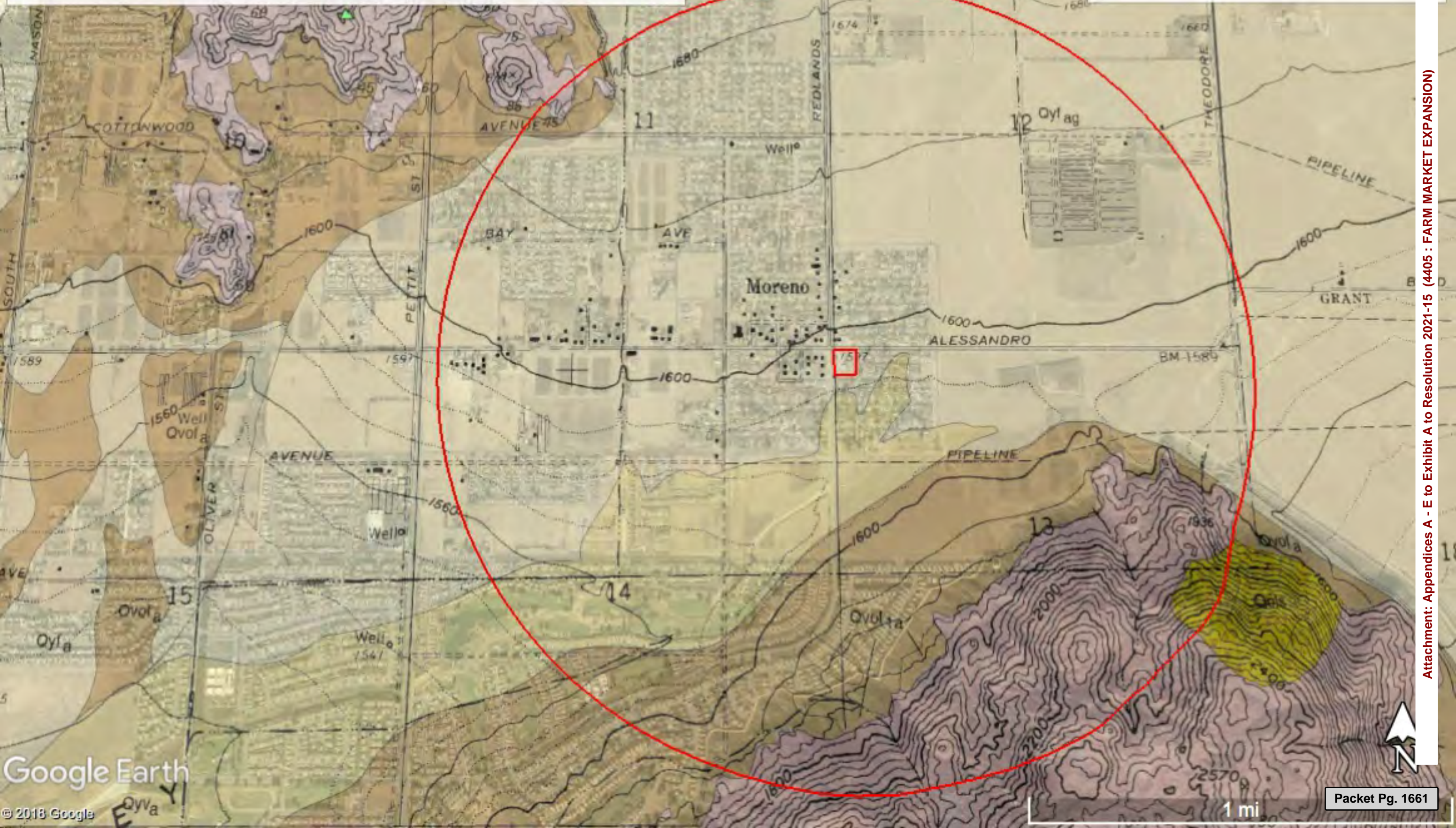
Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Farm Market Project

Project area, one mile radius, geologic mapping and any WSC fossil localities.

Legend 1.c

-  Project Area and One Mile Radius



Appendix D - Energy Analysis



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CA Office
1197 Los Angeles Avenue, Ste C-256
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p. (805) 426-4477

www.mdacoustics.com

February 24, 2021

Ms. Julie Gilbert
ELMT Consulting, Inc.
2201 N Grand Ave, Ste #10098
Santa Ana, CA 92711

**Subject: Farm Market Improvement Development– CEQA Energy Review,
City of Moreno Valley, CA**

Dear Mr. Gilbert:

MD Acoustics, LLC (MD) has completed a CEQA energy review for the proposed Farm Market Improvement development, located at the southeast corner of Redlands Boulevard and Alessandro Boulevard, in the City of Moreno Valley, CA. The proposed project currently has an existing Farm Market store and cell tower and proposes to add the following:

- 2,000 square feet of commercial building;
- 2,500 square feet of restaurant; and
- 1,129.4 square feet of Convenience Market/Gas station with 8 vehicle fueling pumps.

1.0 Existing Energy Conditions

Overview

California's estimated annual energy use as of 2019 included:

- Approximately 279,402 gigawatt hours of electricity;¹
- Approximately 2,154,030 million cubic feet of natural gas per year²; and
- Approximately 23.2 billion gallons of transportation fuel (for the year 2015)³.

As of 2018, the year of most recent data currently available by the United States Energy Information Administration (EIA), energy use in California by demand sector was:

- Approximately 39.1 percent transportation;
- Approximately 23.5 percent industrial;
Approximately 18.3 percent residential; and

¹California Energy Commission. Energy Almanac. Electricity Consumption by Planning Area [Online] November, 2020. <http://www.ecdms.energy.ca.gov/elecbyplan.aspx>

²Natural Gas Consumption by End Use. U.S. Energy Information Administration. [Online] November, 2020. https://www.eia.gov/dnav/ng/ng_cons_sum_dcu_SCA_a.htm.

³California Energy Commission. Revised Transportation Energy Demand Forecast 2018-2030. [Online] April 19, 2018. <https://www.energy.ca.gov/assessments/>

- Approximately 19.2 percent commercial.⁴

California's electricity in-state generation system generates approximately 200,475 gigawatt-hours each year. In 2019, California produced approximately 68 percent of the electricity it uses; the rest was imported from the Pacific Northwest (approximately 14 percent) and the U.S. Southwest (approximately 18 percent). Natural gas is the main source for electricity generation at approximately 46.54 percent of the total in-state electric generation system power as shown in Table 1 below.

Table 1: Total Electricity System Power (California 2019)¹

Fuel Type	California In-State Generation (GWh)	Percent of California In-State Generation	North-west Imports (GWh)	South-west Imports (GWh)	California Power Mix (GWh)	Percent California Power Mix
Coal	248	0.12%	219	7,765	8,233	2.96%
Natural Gas	86,136	42.97%	62	8,859	95,057	34.23%
Oil	36	0.02%	0	0	36	0.01%
Other (Petroleum Coke/Waste Heat)	411	0.20%	0	11	422	0.15%
Nuclear	16,163	8.06%	39	8,743	24,945	8.98%
Large Hydro	33,145	16.53%	6,387	1,071	40,603	14.62%
Unspecified Sources of Power	0	0.00%	6,609	13,767	20,376	7.34%
Renewables	64,336	32.09%	10,615	13,081	88,032	31.70%
Biomass	5,851	2.92%	903	33	6,787	2.44%
Geothermal	10,943	5.46%	99	1,269	13,260	4.77%
Small Hydro	5,349	2.67%	292	4	5,646	2.03%
Solar	28,513	14.22%	282	5,295	34,090	12.28%
Wind	13,680	32.09%	10,615	13,081	28,249	10.17%
Total	200,475	100.00%	23,930	53,299	277,704	100.00%

Notes:

¹Source: California Energy Commission. 2019 Total System Electric Generation. <https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/2019-total-system-electric-generation>

A summary of and context for energy consumption and energy demands within the State is presented in "U.S. Energy Information Administration, California State Profile and Energy Estimates, Quick Facts" excerpted below:

- California was the seventh-largest producer of crude oil among the 50 states in 2018, and, as of January 2019, it ranked third in oil refining capacity.
- California is the largest consumer of jet fuel among the 50 states and accounted for one-fifth of the nation's jet fuel consumption in 2018
- California's total energy consumption is second-highest in the nation, but, in 2018, the state's per capita energy consumption was the fourth-lowest, due in part to its mild climate and its energy efficiency programs.
- In 2018, California ranked first in the nation as a producer of electricity from solar, geothermal, and biomass resources and fourth in the nation in conventional hydroelectric power generation.

⁴U.S. Energy Information Administration. California Energy Consumption by End-Use Sector. California State Profile and Energy Estimates.[Online] November 2020. <https://www.eia.gov/state/?sid=CA#tabs-2>

- In 2018, large- and small-scale solar PV and solar thermal installations provided 19% of California’s net electricity generation⁵.

As indicated above, California is one of the nation’s leading energy-producing states, and California per capita energy use is among the nation’s most efficient. Given the nature of the proposed project, the remainder of this discussion will focus on the three sources of energy that are most relevant to the project—namely, electricity and natural gas for building uses, and transportation fuel for vehicle trips associated with the proposed project.

Electricity

Electricity would be provided to the project by Moreno Valley Electric Utility (MVU). MVU serves over 6,500 customers within its service area. MVU provides customer service, meter reading, billing, emergency response and other services to new commercial and residential developments located within Moreno Valley Electric Utility’s service area. MVU is a public power utility: owned and operated by the community, locally controlled and managed on a not-for-profit basis. Public power utilities are public service entities and do not serve shareholders. This gives MVU the ability to tailor operations and services to the needs of the local community. Success is measured by how much money stays within the community, not by how much in dividends stockholders receive.⁶ MVU derives electricity from varied energy resources including: fossil fuels, hydroelectric generators, nuclear power plants, geothermal power plants, solar power generation, and wind farms. MVU also purchases from independent power producers and utilities, including out-of-state suppliers.⁷ Table 2 identifies MVU’s specific proportional shares of electricity sources in 2019.

Table 2: MVU 2019 Power Content Label

Energy Resources	2019 Power Mix
Eligible Renewable	33.4%
Biomass & Waste	0.0%
Geothermal	9.3%
Small Hydroelectric	6.8%
Solar	9.5%
Wind	7.8%
Coal	0.0%
Large Hydroelectric	0.0%
Natural Gas	0.0%
Nuclear	0.0%
Other	0.0%
Unspecified Sources of power*	66.6%
Total	100%

Notes:

¹ <http://www.moval.org/mvu/pdfs/power-content2019.pdf>

*Unspecified sources of power means electricity from transactions that are not traceable to specific generation sources.

⁵State Profile and Energy Estimates. Independent Statistics and Analysis. [Online] [Cited November 2020.] <http://www.eia.gov/state/?sid=CA#tabs2>.

⁶ <http://www.moval.org/mvu/about-mvu.html>

⁷ California Energy Commission. Utility Energy Supply plans from 2017. https://www.energy.ca.gov/almanac/electricity_data/supply_forms.html

Natural Gas

Natural gas would be provided to the project by Southern California Gas (SoCalGas). The following summary of natural gas resources and service providers, delivery systems, and associated regulation is excerpted from information provided by the California Public Utilities Commission (CPUC).

The CPUC regulates natural gas utility service for approximately 10.8 million customers that receive natural gas from Pacific Gas and Electric (PG&E), Southern California Gas (SoCalGas), San Diego Gas & Electric (SDG&E), Southwest Gas, and several smaller investor-owned natural gas utilities. The CPUC also regulates independent storage operators Lodi Gas Storage, Wild Goose Storage, Central Valley Storage and Gill Ranch Storage.

The vast majority of California's natural gas customers are residential and small commercial customers, referred to as "core" customers, who accounted for approximately 32 percent of the natural gas delivered by California utilities in 2012. Large consumers, like electric generators and industrial customers, referred to as "noncore" customers, accounted for approximately 68 percent of the natural gas delivered by California utilities in 2012.

The PUC regulates the California utilities' natural gas rates and natural gas services, including in-state transportation over the utilities' transmission and distribution pipeline systems, storage, procurement, metering and billing.

Most of the natural gas used in California comes from out-of-state natural gas basins. In 2012, California customers received 35 percent of their natural gas supply from basins located in the Southwest, 16 percent from Canada, 40 percent from the Rocky Mountains, and 9 percent from basins located within California. California gas utilities may soon also begin receiving biogas into their pipeline systems.”⁸

Transportation Energy Resources

The project would attract additional vehicle trips with resulting consumption of energy resources, predominantly gasoline and diesel fuel. Gasoline (and other vehicle fuels) are commercially-provided commodities and would be available to the project patrons and employees via commercial outlets.

The most recent data available (2016) shows the transportation sector emits 41 percent of the total greenhouse gases in the state and about 84 percent of smog-forming oxides of nitrogen (NOx).^{9,10} Petroleum comprises about 92 percent of all transportation energy use, excluding fuel consumed for aviation and most marine vessels.¹¹

⁸California Public Utilities Commission. Natural Gas and California. http://www.cpuc.ca.gov/natural_gas/

⁹CARB. California Greenhouse Gas Emissions Inventory – 2018 Edition. <https://www.arb.ca.gov/cc/inventory/data/data.htm>

¹⁰CARB. 2016 SIP Emission Projection Data. https://www.arb.ca.gov/app/emsinv/2017/emseic1_query.php?F_DIV=4&F_YR=2012&F_SEASON=A&SP=SIP105ADJ&F_AREA=CA

¹¹US Energy Information Administration. Use of Energy in the United States Explained: Energy Use for Transportation. https://www.eia.gov/energyexplained/?page=us_energy_transportation

2.0 Regulatory Background

Federal and state agencies regulate energy use and consumption through various means and programs. On the federal level, the United States Department of Transportation, the United States Department of Energy, and the United States Environmental Protection Agency are three federal agencies with substantial influence over energy policies and programs. On the state level, the PUC and the California Energy Commissions (CEC) are two agencies with authority over different aspects of energy. Relevant federal and state energy-related laws and plans are summarized below.

Federal Regulations

Corporate Average Fuel Economy (CAFE) Standards

First established by the U.S. Congress in 1975, the Corporate Average Fuel Economy (CAFE) standards reduce energy consumption by increasing the fuel economy of cars and light trucks. The National Highway Traffic Safety Administration (NHTSA) and U.S. Environmental Protection Agency (USEPA) jointly administer the CAFE standards. The U.S. Congress has specified that CAFE standards must be set at the “maximum feasible level” with consideration given for: (1) technological feasibility; (2) economic practicality; (3) effect of other standards on fuel economy; and (4) need for the nation to conserve energy.¹²

Intermodal Surface transportation Efficiency Act of 1991 (ISTEA)

The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) promoted the development of inter-modal transportation systems to maximize mobility as well as address national and local interests in air quality and energy. ISTEA contained factors that Metropolitan Planning Organizations (MPOs) were to address in developing transportation plans and programs, including some energy-related factors. To meet the new ISTEA requirements, MPOs adopted explicit policies defining the social, economic, energy, and environmental values guiding transportation decisions.

The Transportation Equity Act of the 21st Century (TEA-21)

The Transportation Equity Act for the 21st Century (TEA-21) was signed into law in 1998 and builds upon the initiatives established in the ISTEA legislation, discussed above. TEA-21 authorizes highway, highway safety, transit, and other efficient surface transportation programs. TEA-21 continues the program structure established for highways and transit under ISTEA, such as flexibility in the use of funds, emphasis on measures to improve the environment, and focus on a strong planning process as the foundation of good transportation decisions. TEA-21 also provides for investment in research and its application to maximize the performance of the transportation system through, for example, deployment of Intelligent Transportation Systems, to help improve operations and management of transportation systems and vehicle safety.

¹² <https://www.nhtsa.gov/lawsregulations/corporate-average-fuel-economy>.

State Regulations

Integrated Energy Policy Report (IEPR)

Senate Bill 1389 requires the California Energy Commission (CEC) to prepare a biennial integrated energy policy report that assesses major energy trends and issues facing the State's electricity, natural gas, and transportation fuel sectors and provides policy recommendations to conserve resources; protect the environment; ensure reliable, secure, and diverse energy supplies; enhance the state's economy; and protect public health and safety. The Energy Commission prepares these assessments and associated policy recommendations every two years, with updates in alternate years, as part of the Integrated Energy Policy Report.

The recently-approved 2017 Integrated Energy Policy Report Updated (2017 IEPR) was published in April 2018, and continues to work towards improving electricity, natural gas, and transportation fuel energy use in California. The 2016 IEPR focuses on a variety of topics such as implementation of Senate Bill 350, integrated resource planning, distributed energy resources, transportation electrification, solutions to increase resiliency in the electricity sector, energy efficiency, transportation electrification, barriers faced by disadvantaged communities, demand response, transmission and landscape-scale planning, the California Energy Demand Preliminary Forecast, the preliminary transportation energy demand forecast, renewable gas (in response to Senate Bill 1383), updates on Southern California electricity reliability, natural gas outlook, and climate adaptation and resiliency.¹³

State of California Energy Plan

The CEC is responsible for preparing the State Energy Plan, which identifies emerging trends related to energy supply, demand, conservation, public health and safety, and the maintenance of a healthy economy. The Plan calls for the state to assist in the transformation of the transportation system to improve air quality, reduce congestion, and increase the efficient use of fuel supplies with the least environmental and energy costs. To further this policy, the plan identifies a number of strategies, including assistance to public agencies and fleet operators and encouragement of urban designs that reduce vehicle miles traveled and accommodate pedestrian and bicycle access.

California Building Standards Code (Title 24)

California Building Energy Efficiency Standards (Title 24, Part 6)

The California Building Energy Efficiency Standards for Residential and Nonresidential Buildings (California Code of Regulations, Title 24, Part 6) were adopted to ensure that building construction and system design and installation achieve energy efficiency and preserve outdoor and indoor environmental quality. The current California Building Energy Efficiency Standards (Title 24 standards) are the 2019 Title 24 standards, which became effective on January 1, 2020. The 2019 Title 24 standards include efficiency improvements

¹³ California Energy Commission. Final 2017 Integrated Energy Policy Report. April 16, 2018. https://www.energy.ca.gov/2017_energypolicy/

to the lighting and efficiency improvements to the non-residential standards include alignment with the American Society of Heating and Air-Conditioning Engineers.

All buildings for which an application for a building permit is submitted on or after January 1, 2020 must follow the 2019 standards. The 2016 residential standards were estimated to be approximately 28 percent more efficient than the 2013 standards, whereas the 2019 residential standards are estimated to be approximately 7 percent more efficient than the 2016 standards. Furthermore, once rooftop solar electricity generation is factored in, 2019 residential standards are estimated to be approximately 53 percent more efficient than the 2016 standards. Under the 2019 standards, nonresidential buildings are estimated to be approximately 30 percent more efficient than the 2016 standards. Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases greenhouse gas emissions.

California Building Energy Efficiency Standards (Title 24, Part 11)

The 2019 California Green Building Standards Code (California Code of Regulations, Title 24, Part 11), commonly referred to as the CALGreen Code, went into effect on January 1, 2020. The 2019 CALGreen Code includes mandatory measures for non-residential development related to site development; energy efficiency; water efficiency and conservation; material conservation and resource efficiency; and environmental quality.

The Department of Housing and Community Development (HCD) updated CALGreen through the 2019 Triennial Code Adoption Cycle. HCD modified the best management practices for stormwater pollution prevention adding Section 5.106.2; added sections 5.106.4.1.3 and 5.106.4.1.5 in regard to bicycle parking; amended section 5.106.5.3.5 allowing future charging spaces to qualify as designated parking for clean air vehicles; updated section 5.303.3.3 in regard to showerhead flow rates; amended section 5.304.1 for outdoor potable water use in landscape areas and repealed sections 5.304.2 and 5.304.3; and updated Section 5.504.5.3 in regard to the use of MERV filters in mechanically ventilated buildings.

Senate Bill 350

Senate Bill 350 (SB 350) was signed into law October 7, 2015, SB 350 increases California's renewable electricity procurement goal from 33 percent by 2020 to 50 percent by 2030. This will increase the use of Renewables Portfolio Standard (RPS) eligible resources, including solar, wind, biomass, geothermal, and others. In addition, SB 350 requires the state to double statewide energy efficiency savings in electricity and natural gas end uses by 2030. To help ensure these goals are met and the greenhouse gas emission reductions are realized, large utilities will be required to develop and submit Integrated Resource Plans (IRPs). These IRPs will detail how each entity will meet their customers resource needs, reduce greenhouse gas emissions and ramp up the deployment of clean energy resources.

Assembly Bill 32

In 2006 the California State Legislature adopted Assembly Bill 32 (AB 32), the California Global Warming Solutions Act of 2006. AB 32 requires CARB, to adopt rules and regulations that would achieve GHG

emissions equivalent to statewide levels in 1990 by 2020 through an enforceable statewide emission cap which will be phased in starting in 2012. Emission reductions shall include carbon sequestration projects that would remove carbon from the atmosphere and best management practices that are technologically feasible and cost effective.

Assembly Bill 1493/Pavley Regulations

California Assembly Bill 1493 enacted on July 22, 2002, required CARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. In 2005, the CARB submitted a “waiver” request to the EPA from a portion of the federal Clean Air Act in order to allow the State to set more stringent tailpipe emission standards for CO₂ and other GHG emissions from passenger vehicles and light duty trucks. On December 19, 2007 the EPA announced that it denied the “waiver” request. On January 21, 2009, CARB submitted a letter to the EPA administrator regarding the State’s request to reconsider the waiver denial. The EPA approved the waiver on June 30, 2009.

Executive Order S-1-07/Low Carbon Fuel Standard

Executive Order S-1-07 was issued in 2007 and proclaims that the transportation sector is the main source of GHG emissions in the State, since it generates more than 40 percent of the State’s GHG emissions. It establishes a goal to reduce the carbon intensity of transportation fuels sold in the State by at least ten percent by 2020. This Order also directs CARB to determine whether this Low Carbon Fuel Standard (LCFS) could be adopted as a discrete early-action measure as part of the effort to meet the mandates in AB 32.

On April 23, 2009 CARB approved the proposed regulation to implement the low carbon fuel standard. The low carbon fuel standard is anticipated to reduce GHG emissions by about 16 MMT per year by 2020. The low carbon fuel standard is designed to provide a framework that uses market mechanisms to spur the steady introduction of lower carbon fuels. The framework establishes performance standards that fuel producers and importers must meet each year beginning in 2011. Separate standards are established for gasoline and diesel fuels and the alternative fuels that can replace each. The standards are “back-loaded”, with more reductions required in the last five years, than during the first five years. This schedule allows for the development of advanced fuels that are lower in carbon than today’s fuels and the market penetration of plug-in hybrid electric vehicles, battery electric vehicles, fuel cell vehicles, and flexible fuel vehicles. It is anticipated that compliance with the low carbon fuel standard will be based on a combination of both lower carbon fuels and more efficient vehicles.

Reformulated gasoline mixed with corn-derived ethanol at ten percent by volume and low sulfur diesel fuel represent the baseline fuels. Lower carbon fuels may be ethanol, biodiesel, renewable diesel, or blends of these fuels with gasoline or diesel as appropriate. Compressed natural gas and liquefied natural gas also may be low carbon fuels. Hydrogen and electricity, when used in fuel cells or electric vehicles are also considered as low carbon fuels for the low carbon fuel standard.

California Air Resources Board

CARB’s Advanced Clean Cars Program

Closely associated with the Pavley regulations, the Advanced Clean Cars emissions control program was approved by CARB in 2012. The program combines the control of smog, soot, and GHGs with requirements

for greater numbers of zero-emission vehicles for model years 2015–2025. The components of the Advanced Clean Cars program include the Low-Emission Vehicle (LEV) regulations that reduce criteria pollutants and GHG emissions from light- and medium-duty vehicles, and the Zero-Emission Vehicle (ZEV) regulation, which requires manufacturers to produce an increasing number of pure ZEVs (meaning battery electric and fuel cell electric vehicles), with provisions to also produce plug-in hybrid electric vehicles (PHEV) in the 2018 through 2025 model years.¹⁴

Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling

The Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling (Title 13, California Code of Regulations, Division 3, Chapter 10, Section 2435) was adopted to reduce public exposure to diesel particulate matter and other air contaminants by limiting the idling of diesel-fueled commercial motor vehicles. This section applies to diesel-fueled commercial motor vehicles with gross vehicular weight ratings of greater than 10,000 pounds that are or must be licensed for operation on highways. Reducing idling of diesel-fueled commercial motor vehicles reduces the amount of petroleum-based fuel used by the vehicle.

Regulation to Reduce Emissions of Diesel Particulate Matter, Oxides of Nitrogen, and other Criteria Pollutants, from In-Use Heavy-Duty Diesel-Fueled Vehicles

The Regulation to Reduce Emissions of Diesel Particulate Matter, Oxides of Nitrogen and other Criteria Pollutants, from In-Use Heavy-Duty Diesel-Fueled Vehicles (Title 13, California Code of Regulations, Division 3, Chapter 1, Section 2025) was adopted to reduce emissions of diesel particulate matter, oxides of nitrogen (NO_x) and other criteria pollutants from in-use diesel-fueled vehicles. This regulation is phased, with full implementation by 2023. The regulation aims to reduce emissions by requiring the installation of diesel soot filters and encouraging the retirement, replacement, or repower of older, dirtier engines with newer emission-controlled models. The newer emission controlled models would use petroleum-based fuel in a more efficient manner.

Sustainable Communities Strategy

The Sustainable Communities and Climate Protection Act of 2008, or Senate Bill 375 (SB 375), coordinates land use planning, regional transportation plans, and funding priorities to help California meet the GHG reduction mandates established in AB 32.

Senate Bill 375 (SB 375) was adopted September 2008 and aligns regional transportation planning efforts, regional GHG emission reduction targets, and land use and housing allocation. SB 375 requires Metropolitan Planning Organizations (MPO) to adopt a sustainable communities strategy (SCS) or alternate planning strategy (APS) that will prescribe land use allocation in that MPOs Regional Transportation Plan (RTP). CARB, in consultation with each MPO, will provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. These reduction targets will be updated every eight years but can be updated every four years if advancements in emissions technologies affect the reduction strategies to achieve the targets. CARB is also charged with reviewing each MPO's sustainable communities strategy or alternate planning strategy for consistency with its assigned targets.

¹⁴ California Air Resources Board, California's Advanced Clean Cars Program, January 18, 2017. www.arb.ca.gov/msprog/acc/acc.htm.

3.0 Evaluation Criteria and Methodology

Evaluation Criteria

CEQA Energy Questions

In compliance with Appendix G of the State CEQA Guidelines, this report analyzes the project's anticipated energy use to determine if the project would:

- a) Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?
- b) Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

In addition, Appendix F of the State CEQA Guidelines states that the means of achieving the goal of energy conservation includes the following:

- Decreasing overall per capita energy consumption;
- Decreasing reliance on fossil fuels such as coal, natural gas and oil; and
- Increasing reliance on renewable energy sources.

Methodology

Information from the CalEEMod 2016.3.2 Daily and Annual Outputs contained in the Farm Market Improvement Development Air Quality and Greenhouse Gas Impact Study (AQR) prepared for the proposed project by MD (October 9, 2020), was utilized for this analysis. The CalEEMod outputs in the AQR detail project related construction equipment, transportation energy demands, and facility energy demands.

4.0 Energy Review

Construction Energy Demand

The construction schedule is anticipated to occur between February 2023 and January 2024 and be completed in one phase. Staging of construction vehicles and equipment will occur on-site.

Construction Equipment Electricity Usage Estimates

As stated previously, electrical service will be provided by the MVU. The focus within this section is the energy implications of the construction process, specifically the power cost from on-site electricity consumption during construction of the proposed project. Based on the 2017 National Construction Estimator, Richard Pray (2017)¹⁵, the typical power cost per 1,000 square feet of building construction per month is estimated to be \$2.32. The project plans to develop the site with approximately 2,000

¹⁵ Pray, Richard. 2017 National Construction Estimator. Carlsbad : Craftsman Book Company, 2017.

square feet (SF) of retail, a 2,500 SF sit-down restaurant, 1,129.4 SF of convenience market with 8 gas pumps, and a 37-space parking lot, on approximately 1.7 acres over the course of approximately eleven months. Based on Table 3, the total power cost of the on-site electricity usage during the construction of the proposed project is estimated to be approximately \$143.65. Furthermore, MVU's general service rate (average of summer and winter rates) is approximately \$0.10 per kWh of electricity.¹⁶ As shown in Table 3, the total electricity usage from Project construction related activities is estimated to be approximately 1,596 kWh.

Table 3: Project Construction Power Cost and Electricity Usage

Power Cost (per 1,000 square foot of building per month of construction)	Total Building Size (1,000 Square Foot)	Construction Duration (months)	Total Project Construction Power Cost
\$2.32	5.6	11	\$143.65

Cost per kWh	Total Project Construction Electricity Usage (kWh)
\$0.10	1,383

*Assumes the project will be under the General Service rate for Moreno Valley Utility (average of summer and winter rates)

Construction Equipment Fuel Estimates

Fuel consumed by construction equipment would be the primary energy resource expended over the course of project construction. Fuel consumed by construction equipment was evaluated with the following assumptions:

- Construction schedule of approximately 11 months
- All construction equipment was assumed to run on diesel fuel
- Typical daily use of 8 hours, with some equipment operating from ~6-7 hours
- Aggregate fuel consumption rate for all equipment was estimated at 18.5 hp-hr/day (from CARB's 2017 Emissions Factors Tables and fuel consumption rate factors as shown in Table D-21 of the Moyer Guidelines: https://www.arb.ca.gov/msprog/moyer/guidelines/2017gl/2017_gl_appendix_d.pdf).
- Diesel fuel would be the responsibility of the equipment operators/contractors and would be sources within the region.
- Project construction represents a "single-event" for diesel fuel demand and would not require on-going or permanent commitment of diesel fuel resources during long term operation.

Using the CalEEMod data input from the air quality and greenhouse gas analysis (MD Acoustics 2019), the project's construction phase would consume electricity and fossil fuels as a single energy demand, that is, once construction is completed their use would cease. CARB's 2013 Emissions Factors Tables

¹⁶ Moreno Valley Utility (MVU). Exhibit A Electric Rates: Schedule B – General Service. http://www.moval.org/mvu/pdfs/MVU_Rates.pdf

show that on average aggregate fuel consumption (gasoline and diesel fuel) would be approximately 18.5 hp-hr-gal. Table 4 shows the results of the analysis of construction equipment.

Table 4: Construction Fuel Construction Estimates

Phase	Number of Days	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor	HP hrs/day	Total Fuel Consumption (gal diesel fuel) ¹
Site Preparation	2	Graders	1	8	187	0.41	613	66
	2	Rubber Tired Dozers	1	7	247	0.4	692	75
	2	Tractors/Loaders/Backhoes	1	8	97	0.37	287	31
Grading	4	Graders	1	6	187	0.41	460	99
	4	Rubber Tired Dozers	1	6	247	0.4	593	128
	4	Tractors/Loaders/Backhoes	1	7	97	0.37	251	54
Building Construction	200	Cranes	1	6	231	0.29	402	4,345
	200	Forklifts	1	6	89	0.2	107	1,155
	200	Generator Sets	1	8	84	0.74	497	5,376
	200	Tractors/Loaders/Backhoes	1	6	97	0.37	215	2,328
	200	Welders	3	8	46	0.45	497	5,371
Paving	10	Pavers	1	6	130	0.42	328	177
	10	Cement and Mortar Mixers	1	6	9	0.56	30	16
	10	Tractors/Loaders/Backhoes	1	8	97	0.37	287	155
	10	Paving Equipment	1	8	132	0.36	380	205
Architectural Coating	10	Air Compressors	1	6	78	0.48	225	121
CONSTRUCTION FUEL DEMAND (gallons of diesel fuel)								19,704

Notes:

¹Using Carl Moyer Guidelines Table D-21 Fuel consumption rate factors (bhp-hr/gal) for engines less than 750 hp.
 (Source: https://www.arb.ca.gov/msprog/moyer/guidelines/2017gl/2017_gl_appendix_d.pdf)

As presented in Table 4, project construction activities would consume an estimated 19,704 gallons of diesel fuel. As stated previously, project construction would represent a “single-event” diesel fuel demand and would not require on-going or permanent commitment of diesel fuel resources for this purpose.

Construction Worker Fuel Estimates

It is assumed that all construction worker trips are from light duty autos (LDA) along area roadways. With respect to estimated VMT, the construction worker trips would generate an estimated 72,295 VMT. Data regarding project related construction worker trips were based on CalEEMod 2016.3.2 model defaults.

Vehicle fuel efficiencies for construction workers were estimated in the air quality and greenhouse gas analysis (MD Acoustics 2020) using information generated using CARB’s EMFAC 2017 model for year 2023. An aggregate fuel efficiency of 30.95 miles per gallon (mpg) was used to calculate vehicle miles traveled for construction worker trips. Table 5 shows that an estimated 2,193 gallons of fuel would be consumed for construction worker trips.

Table 5: Construction Worker Fuel Consumption Estimates

Phase	Number of Days	Worker Trips/Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Site Preparation	2	8	14.7	235	30.95	8
Grading	4	8	14.7	470	30.95	15
Building Construction	200	22	14.7	64,680	30.95	2,090
Paving	10	13	14.7	1,911	30.95	62
Architectural Coating	10	4	14.7	588	30.95	19
Total Construction Worker Fuel Consumption						2,193

Notes:

¹Assumptions for the worker trip length and vehicle miles traveled are consistent with CalEEMod 2016.3.2 defaults.

Construction Vendor/Hauling Fuel Estimates

Tables 6 and 7 show the estimated fuel consumption for vendor and hauling during building construction and architectural coating. With respect to estimated VMT, the vendor and hauling trips would generate an estimated 12,420 VMT. Data regarding project related construction worker trips were based on CalEEMod 2016.3.2 model defaults.

For the architectural coatings it is assumed that the contractors would be responsible for bringing coatings and equipment with them in their light duty vehicles. Therefore, vendors delivering construction material or hauling debris from the site during grading would use medium to heavy duty vehicles with an average fuel consumption of 9.22 mpg and 6.74 mpg respectively. Tables 6 and 7 show that an estimated 1,347 gallons of fuel would be consumed for vendor trips and 24 gallons for hauling trips.

Table 6: Construction Vendor Fuel Consumption Estimates (MHD Trucks)¹

Phase	Number of Days	Vendor Trips/Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Site Preparation	2	0	6.9	0	9.22	0
Grading	4	0	6.9	0	9.22	0
Building Construction	200	9	6.9	12,420	9.22	1,347
Paving	10	0	6.9	0	9.22	0
Architectural Coating	10	0	6.9	0	9.22	0
Total Construction Worker Fuel Consumption						1,347

Notes:

¹Assumptions for the vendor trip length and vehicle miles traveled are consistent with CalEEMod 2016.3.2 defaults.

Table 7: Construction Hauling Fuel Consumption Estimates (HHD Trucks)¹

Phase	Number of Days	Hauling Trips/Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Site Preparation	2	8	20	160	6.74	24
Grading	4	0	20	0	6.74	0
Building Construction	200	0	20	0	6.74	0
Paving	10	0	20	0	6.74	0
Architectural Coating	10	0	20	0	6.74	0
Total Construction Worker Fuel Consumption						24

Notes:

¹Assumptions for the hauling trip length and vehicle miles traveled are consistent with CalEEMod 2016.3.2 defaults.

Construction Energy Efficiency/Conservation Measures

Construction equipment used over the approximately seventeen-month construction phase would conform to CARB regulations and California emissions standards and is evidence of related fuel efficiencies. Construction of the proposed commercial development would require the typical use of energy resources. There are no unusual project characteristics or construction processes that would require the use of equipment that would be more energy intensive than is used for comparable activities; or equipment that would not conform to current emissions standards (and related fuel efficiencies). Equipment employed in construction of the project would therefore not result in inefficient wasteful, or unnecessary consumption of fuel.

CARB has adopted the Airborne Toxic Control Measure to limit heavy-duty diesel motor vehicle idling in order to reduce public exposure to diesel particulate matter and other Toxic Air Contaminants. Additionally, as required by California Code of Regulations Title 13, Motor Vehicles, section 2449(d)(3) Idling, limits idling times of construction vehicles to no more than five minutes, thereby minimizing or eliminating unnecessary and wasteful consumption of fuel due to unproductive idling of construction equipment. Enforcement of idling limitations is realized through periodic site inspections conducted by City building officials, and/or in response to citizen complaints. Compliance with these measures would result in a more efficient use of construction-related energy and would minimize or eliminate wasteful or unnecessary consumption of energy. Idling restrictions and the use of newer engines and equipment would result in less fuel combustion and energy consumption.

Furthermore, the project has been designed in compliance with California's Energy Efficiency Standards and 2019 CALGreen Standards. These measures include, but are not limited to the use of water conserving plumbing, installation of bicycle racks, the use of LED lighting, and water-efficient irrigation systems.

Operation Energy Demand

Energy consumption in support of or related to project operations would include transportation energy demands (energy consumed by employee and patron vehicles accessing the project site) and facilities energy demands (energy consumed by building operations and site maintenance activities).

Transportation Fuel Consumption

The largest source of operational energy use would be vehicle operation of customers. The site is located in a suburban area at the southeast corner of Redland Boulevard and Alessandro Boulevard. Furthermore, there are existing transit services, provided by RTA, approximately 1 mile from the proposed Project site. The nearest transit service is Riverside Transit Route 20, with a stop along Alessandro Boulevard just west of Moreno Beach Drive.

Using the CalEEMod output from the air quality and greenhouse gas analysis (MD Acoustics 2019), an average trip for autos and light trucks was assumed to be 16.6 miles and 3- 4-axle trucks were assumed to travel an average of 8.4 miles¹⁷. To present a worst-case scenario, it was assumed that vehicles would operate 365 days per year rather than the more likely 253 days (excluding weekends and up to 8 holidays). The average, aggregate fuel economy was obtained from EMFAC 2017 for year 2024. Table 8 shows the estimated annual fuel consumption for all classes of vehicles from autos to heavy-heavy trucks.

The proposed project would generate approximately 1,732 trips per day. The vehicle fleet mix was used from the CalEEMod output from the air quality and greenhouse gas analysis (MD Acoustics 2019). Table 8 shows that an estimated 363,786 gallons of fuel would be consumed per year for the operation of the proposed project.

Table 8: Estimated Vehicle Operations Fuel Consumption

Vehicle Type	Vehicle Mix	Number of Vehicles	Average Trip (miles) ¹	Daily VMT	Average Fuel Economy (mpg)	Total Gallons per Day	Total Annual Fuel Consumption (gallons)
Light Auto	Automobile	970	16.6	16,101	32.61	493.73	180,213
Light Truck	Automobile	62	16.6	1,035	27.79	37.25	13,594
Light Truck > 3750 lbs	Automobile	326	16.6	5,405	26.42	204.59	74,675
Medium Truck	Automobile	191	8.4	1,602	21.45	74.68	27,257
Light Heavy Truck	2-Axle Truck	23	8.4	195	14.05	13.88	5,065
Lt Heavy Truck 10,000 lbs +	2-Axle Truck	8	8.4	68	14.44	4.70	1,714
Medium Heavy Truck	3-Axle Truck	30	8.4	255	9.74	26.21	9,568
Heavy Heavy Truck	4-Axle Truck	121	8.4	1,018	7.19	141.64	51,700
Total		1,732	--	25,679	19.21	996.67	--
Total Annual Fuel Consumption							363,786

Notes:

¹Based on the size of the site and relative location, trips were assumed to be local rather than regional.

Facility Energy Demands (Electricity and Natural Gas)

Building operation and site maintenance (including landscape maintenance) would result in the consumption of electricity (provided by MVU) and natural gas (provided by Southern California Gas

¹⁷ CalEEMod default distance for H-W (home-work) or C-W (commercial-work) is 16.6 miles; 8.4 miles for H-O (home-other) or C-O (commercial-other).

Company). Operation of the proposed project would involve the use of energy for heating, cooling and equipment operation. These facilities would comply with all applicable California Energy Efficiency Standards and 2019 CALGreen Standards.

The annual natural gas and electricity demands were provided per the CalEEMod output from the air quality and greenhouse gas analysis (MD Acoustics, LLC 2019) and are provided in Table 9.

Table 9: Project Mitigated Annual Operational Energy Demand Summary¹

Natural Gas Demand	kBTU/year
Convenience Market With Gas Pumps	2,507
High Turnover (Sit-Down Restaurant)	683,600
Regional Shopping Center	4,440
Total	690,547

Electricity Demand	kWh/year
Convenience Market With Gas Pumps	14,264.3
High Turnover (Sit-Down Restaurant)	118,700
Parking Lot	9,605
Regional Shopping Center	25,260.0
Total	167,829

Notes:

¹Taken from the CalEEMod 2016.3.2 annual output in The Farm Market Air Quality and Greenhouse Gas Impact Study prepared for the proposed project by MD Acoustics (October 9, 2019).

Energy use in buildings is divided into energy consumed by the built environment and energy consumed by uses that are independent of the construction of the building such as in plug-in appliances. In California, the California Building Standards Code Title 24 governs energy consumed by the built environment, mechanical systems, and some types of fixed lighting. Non-building energy use, or “plug-in” energy use can be further subdivided by specific end-use (refrigeration, cooking, appliances, etc.).

Renewable Energy and Energy Efficiency Plan Consistency

Regarding federal transportation regulations, the project site is located in an already developed area. Access to/from the project site is from existing roads. These roads are already in place so the project would not interfere with, nor otherwise obstruct intermodal transportation plans or projects that may be proposed pursuant to the ISTEA because SCAG is not planning for intermodal facilities in the project area.

Regarding the State’s Energy Plan and compliance with Title 24 CCR energy efficiency standards, the applicant is required to comply with the California Green Building Standard Code requirements for energy efficient buildings and appliances as well as utility energy efficiency programs implemented by the MVU and Southern California Gas Company.

Regarding the State’s Renewable Energy Portfolio Standards, the project would be required to meet or exceed the energy standards established in the California Green Building Standards Code, Title 24, Part

11 (CALGreen). CalGreen Standards require that new buildings reduce water consumption, employ building commissioning to increase building system efficiencies, divert construction waste from landfills, and install low pollutant-emitting finish materials.

5.0 Conclusions

As supported by the preceding analyses, neither construction nor operation of the Project would result in wasteful, inefficient, or unnecessary consumption of energy, or wasteful use of energy resources. Therefore, impacts related to wasteful energy use would be less than significant. Furthermore, the energy demands of the project can be accommodated within the context of available resources and energy delivery systems. The project would therefore not cause or result in the need for additional energy producing or transmission facilities. The project would not engage in wasteful or inefficient uses of energy and aims to achieve energy conservations goals within the State of California.

The Project has been designed in compliance with California's Energy Efficiency Standards and 2019 CALGreen Standards. These measures include, but are not limited to the use of water conserving plumbing, the use of LED lighting, and water-efficient irrigation systems. The Project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency; therefore, impacts would be less than significant.

MD is pleased to provide this CEQA Energy review. If you have any questions regarding this analysis, please don't hesitate to call us at (805) 426-4477.

Sincerely,
MD Acoustics, LLC



Mike Dickerson, INCE
Principal

Appendix E - Geotechnical Analysis

**PRELIMINARY GEOTECHNICAL INVESTIGATION
PROPOSED COMMERCIAL DEVELOPMENT
14058 REDLANDS BOULEVARD
MORENO VALLEY, CALIFORNIA**

**PROJECT NO. 12765.11
NOVEMBER 21, 2018**

Prepared For:

Mr. Parmjit Singh
14058 Redlands Boulevard
Moreno Valley, California 92555

Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

November 21, 2018

Mr. Parmjit Singh
14058 Redlands Boulevard
Moreno Valley, California 92555

Project No. 12765.11

Subject: Preliminary Geotechnical Investigation, Proposed Commercial Development,
14058 Redlands Boulevard, Moreno Valley, California.

LOR Geotechnical Group, Inc., is pleased to present this report summarizing our geotechnical investigation for the subject project. In summary, it is our opinion that the proposed development is feasible from a geotechnical perspective, provided the recommendations presented in the attached report are incorporated into design and construction.

The project site is underlain by an approximate 2-foot thick layer of undocumented fill materials overlying alluvial materials which were found to have a potential for hydro-collapse in the upper 10 to 12 feet. It is our opinion that the existing fill materials and upper hydro-collapsible alluvial soils will not provide uniform and/or adequate support for the proposed development. Thus, we recommend a compacted fill mat be constructed beneath footings and slabs. The construction of this compacted fill mat will allow for the removal of the existing, uncontrolled fills and upper unsuitable alluvium. All on-site soils should be suitable for use as engineered compacted fill. Removals on the order of 10 to 12 feet are anticipated to be required within the proposed building pad areas, while removals on the order of 2 to 4 feet are expected to be necessary within parking, driveway, and flatwork areas.

Due to the presence of hydro-collapsible soils at the site and adjacent properties, infiltration of water into the upper approximately 10 to 12 feet is not recommended. While the remedial grading recommended within this report is anticipated to mitigate such soils within the proposed building areas of the site, the presence of hydro-collapsible soils on neighboring properties is most likely and the introduction of water into such soils could have an adverse effect on those developments.

Low expansive soils and moderate R-value quality soils were encountered on the site. A negligible sulfate content was found for the soils tested. Near completion and/or at the completion of site grading, additional foundation and subgrade soils should be tested to verify their expansion potential, soluble sulfate content, and R-value quality.

LOR Geotechnical Group, Inc.

Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

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Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Mr. Parmjit Singh
November 21, 2018

Project No. 12765.11

INTRODUCTION

During October and November of 2018, a Preliminary Geotechnical Investigation was performed by LOR Geotechnical Group, Inc., for the proposed commercial development of 14085 Redlands Boulevard, in the City of Moreno Valley, California. The purpose of this investigation was to provide a technical evaluation of the geologic setting of the site and to provide geotechnical design recommendations for the proposed development. The scope of our services included:

- Review of available geotechnical literature, reports, maps, and agency information pertinent to the study area;
- Geologic field reconnaissance mapping to verify the areal distribution of earth units and significance of surficial features as compiled from documents, literature, and reports reviewed;
- A subsurface field investigation to determine the physical soil conditions pertinent to the proposed development;
- Laboratory testing of selected soil samples obtained during the field investigation;
- Infiltration testing via the double ring test method within the approximate area proposed for the infiltration of onsite runoff waters;
- Development of geotechnical recommendations for site grading and foundation design; and
- Preparation of this report summarizing our findings, and providing conclusions and recommendations for site development.

The approximate location of the site is shown on the attached Index Map, Enclosure A-1 within Appendix A.

PROJECT CONSIDERATIONS

To orient our investigation at the site, a Site Plan was provided for our use. This plan illustrated the current site development as well as the proposed development. As illustrated, that the site will be developed with a 6,000 square foot restaurant and commercial building, a fueling station, and associated parking, driveway, and landscape improvements. A water quality basin is proposed. Minimal cuts and fills on the order of 2

Mr. Parmjit Singh
November 21, 2018

Project No. 12765.11

to 3 feet are anticipated based on the current site topography and that of the adjoining areas. A copy of the Site Plan is shown on Enclosure A-2, within the Appendix A.

The construction of the building is anticipated to be wood frame and stucco or similar type construction. Light to moderate foundation loads are anticipated with the proposed structure.

EXISTING SITE CONDITIONS

The site consists of approximately 2 acres of land located at the southeast corner of Alessandro Boulevard and Redlands Boulevard. At the time of our investigation, the site was partially developed with a commercial structure and the associated parking, driveway, and landscape improvements. A cellular tower and associated equipment was also present. This development comprised the western half of the site. The eastern half of the site was vacant. The proposed structure and water quality basin are to be in the southern portion of the eastern half of the site with the northern portion of the eastern half to be paved parking. The proposed fueling station is to be located within the currently developed parking lot in the northwest portion of the site.

The topography of the site is essentially a flat plain with a very slight slope to the south-southeast.

At the time of our investigation, the site was bounded on the east by a single family residences. The site was bounded on the south by Kimberly Avenue, a paved roadway, with single family residential properties beyond. The site was bounded on the north by Alessandro Boulevard, a paved roadway, with a small market/gas station and single family residences beyond. West of the site was Redlands Boulevard, a paved roadway, with a Post Office and single-family residences beyond.

PREVIOUS GEOTECHNICAL INVESTIGATIONS

This firm provided geotechnical services during the design and construction of the existing development on the site. Our initial investigation consisted of a preliminary geotechnical and infiltration feasibility investigation in 2011. This investigation was conducted to provide preliminary geotechnical recommendations for such items as: geologic hazards, site rough grading, foundation design, pavement design, and other associated geotechnical aspects with regards to site development. In brief summary, the upper approximately 10 to 12 feet of native soils were found to have a slight to moderate potential for hydro-collapse and

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were not considered suitable for support of structures and/or structural fill. In addition, the soils tested were found to have a low expansion potential, moderate R-value quality and negligible soluble sulfate content.

This firm provided geotechnical observation and compaction testing during the grading of the existing site improvements in 2012. Based on the recommendations of the preliminary geotechnical report, within the building pad area and extending approximately 12 feet beyond the footings, the upper approximately 12 feet of soil was removed and replaced as engineered compacted fill.

SUBSURFACE FIELD INVESTIGATION

Our subsurface field exploration program was conducted on October 26, 2018. The work consisted of advancing a total of three exploratory borings using a truck mounted drill rig equipped with 8-inch diameter hollow stem augers. The approximate locations of our exploratory borings are presented on Enclosure A-2, within Appendix A.

The subsurface conditions encountered in the exploratory borings were logged by a geologist from this firm. The borings were drilled to depths of 26.5 to 51.5 feet below the existing ground surface. Relatively undisturbed and bulk samples were obtained at a maximum depth interval of 5 feet and returned to our geotechnical laboratory in sealed containers for further testing and evaluation.

A detailed description of the subsurface field exploration program and the boring logs are presented in Appendix B.

LABORATORY TESTING PROGRAM

Selected soil samples obtained during the field investigation were subjected to geotechnical laboratory testing to evaluate their physical and engineering properties. Laboratory testing included moisture content, dry density, laboratory compaction, consolidation, direct shear, sieve analysis, sand equivalent, R-Value, expansion index, Atterberg limits, and soluble sulfate content. A detailed description of the geotechnical laboratory testing program and the test results are presented in Appendix C.

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GEOLOGIC CONDITIONS

Regional Geologic Setting

The site is situated within the northeastern portion of the Peninsular Ranges Geomorphic Province of southern California. This province incorporates several northwest trending mountain ranges, such as the Santa Ana and San Jacinto Mountains, which extend from the Transverse Ranges Geomorphic Province, northeast of Los Angeles, into the Baja California Peninsula. Lying in between these small ranges are a series of valleys and basins, such as the Perris Plain. The Perris Plain is composed of rocks of the Peninsular Ranges batholith, a very large mass composed primarily of batholithic crystalline igneous rocks, with lesser amounts of metasedimentary and metavolcanic rocks which predate the intrusion of the batholith. The batholithic rocks actually consist of numerous separate plutonic intrusions which range in composition from gabbro to granite, with tonalite the predominate lithology. While the floor of the Perris Plain is relatively flat, it is dotted with small remnant hills composed of rocks highly resistant to erosion. Erosion of the hills has resulted in the covering of a thin to thick veneer of various ages of alluvial fan materials across the flank of the hills and out into the adjoining valley floor. The current drainage pattern of the northeastern section of Moreno Valley flows to the south, then turns to the southwest where southward flow is blocked by Mount Russell. This pattern has eroded off some of the older alluvial fan materials and subsequently deposited various amounts of relatively younger, unconsolidated alluvial sediments along the lower reaches of the valley.

The interior of the Perris Plain is considered to be relatively stable with few known active faults. However, this plain is bounded by active faults. These include the Elsinore fault zone on the west, the San Jacinto fault zone on the northeast, the San Andreas fault zone on the north, and the Agua-Tibia fault zone on the south. As the subject site is located near the northeastern margin of the Perris Plain, the San Jacinto fault is the closest known active fault in relation to the site. At its closest approach, the San Jacinto fault is located approximately 3 kilometers (1.9 miles) northeast from the site. A complete listing of the distances to known active faults in relation to the various planning areas is given in the Faulting section of this report.

The site is shown within the regional geologic setting as mapped by the U.S.G.S. on the enclosed Regional Geologic Map, Enclosure A-3, within Appendix A.

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Site Geologic Conditions

As observed during this investigation, the subject site contains a very thin veneer of undocumented fill/topsoil or engineered fill overlying native alluvial materials. These units are described in further detail in the following sections:

Surficial Deposits

Fill/Topsoil: The surface of the currently undeveloped portion of the site contained a very thin layer of fill/topsoil materials. These materials were noted to generally consist of sandy silt which was gray-brown in color, dry, and in a relatively loose state. This unit was noted to be approximately 2 feet in thickness as is most likely a result of past and current weed abatement practices at the site.

Engineered Fill:

Underlying areas of the site that are currently developed, engineered compacted fill previously mentioned above was encountered at the surface to a depth of approximately 5 feet (LOR, 2012). These materials consisted of sandy silt and silty sand which was gray-brown, dry at the surface becoming damp to moist with depth.

Alluvium: Underlying the surficial fill materials, natural units of alluvium were encountered. These materials generally consisted of lean clay with sand near the surface followed by sandy silt within the upper approximately 25 feet. Lean clay with sand was encountered at depths of approximately 25 feet and greater. In general, the upper approximately 25 feet of alluvial materials were brown to white-tan in color, damp to dry, and contained varying amounts of calcite stringers and pinhole porosity. Based on our in-place density testing and equivalent SPT blow counts, the upper 10 to 12 feet of the alluvium is in a medium to very stiff state while the materials below are in a very stiff to very hard state. Consolidation testing also showed that the upper alluvial units have a moderately severe potential for collapse. Collapsible soils are primarily defined as unsaturated, granular materials in a loose state that is maintained by apparent cohesion due to clays or accumulated soluble salts at their intergranular contacts. These soils are relatively strong at their natural water contents but experience a significant decrease in volume (settlement) due to softening of the binder upon the introduction of water. A potential for hydro-collapse of approximately 10 percent was determined for the upper 10 feet of the native alluvial materials. Below 10 feet, the hydro-collapse potential of the on-site soils decreases to less than one-half percent and is, therefore, considered negligible. Expansion index testing performed on the

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fine grained units of alluvium showed that these soils have a low expansion potential. Details and the results of our consolidation and expansion index testing is presented within Appendix C of this report.

A detailed description of the subsurface soil conditions as encountered within our exploratory borings is presented on the Boring Logs within Appendix B.

Groundwater Hydrology

Groundwater was not encountered in any of our excavations at the site. In order to estimate the approximate depth to groundwater in this area, a search was conducted for local municipal water wells on the Western Municipal Water District Cooperative Well Measuring Program, Spring 2018. This database contains depth to groundwater measurements dating back to 1993. The closest well found was listed as the well "Sunnymead Poultry Theodore South" operated by Eastern Municipal Valley Water District, located approximately 0.8 kilometers (0.5 miles) to the northeast. In this well, given by the State Well numbering system as 03S/03W-12K001S, groundwater was last measured at a depth of 127 feet below the ground surface in November of 2007. The depth to groundwater in the past was noted to vary slightly over time. However, data was only available for the years from 2004 to 2007. The next closest well found was listed as the well "MVRGC" operated by Eastern Municipal Valley Water District, located approximately 1.2 kilometers (0.75 miles) to the southwest. In this well, given by the State Well numbering system as 03S/03W-14L011E, groundwater was last measured at a depth of 69 feet below the ground surface in October of 2016. The depth to groundwater in the past was noted to vary slightly over time. However, data was only available for the years from 2004 to 2016.

According to the Santa Ana Watershed Authority Database Management System, groundwater lied at an elevation of approximately 1,500 feet above mean sea level (msl) from 1987 to 2006. The approximate elevation of the subject site is 1,600 feet above msl.

We conducted a search of the water well database provided in the State of California Department of Water Resources website. This search indicated the nearest well in this database was State Well Number 03S02W07P001S, located approximately 2 kilometers (1.2 miles) to the northeast. Data for this well was available from 1939 to 1985. Groundwater measurements over that time ranged from approximately 100 feet to 145 feet below the ground surface.

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Based on the information above, groundwater at the site appears to be at depths on the order of one hundred feet.

Mass Movement

The majority of the site lies on a relatively flat surface. The occurrence of mass movement failures such as landslides, rockfalls, or debris flows within such areas are generally not considered common and no evidence of mass movement was observed on the site.

Faulting

No active or potentially active faults are known to exist at the subject site. In addition, the subject site does not lie within a current State of California Earthquake Fault Zone (Hart and Bryant, 2003).

As previously mentioned, the closest known active earthquake fault with a documented location is the San Jacinto fault located approximately 3 kilometers (1.9 miles) to the northeast. In addition, other relatively close active faults include the San Andreas fault located approximately 22 kilometers (13.5 miles) to the northeast, the Elsinore fault located approximately 34.5 kilometers (21.4 miles) to the southwest, and the Cucamonga fault located approximately 39 kilometers (24 miles) to the north.

The San Jacinto fault zone is a sub-parallel branch of the San Andreas fault zone, extending from the northwestern San Bernardino area, southward into the El Centro region. This fault has been active in recent times with several large magnitude events. It is believed that the San Jacinto fault is capable of producing an earthquake magnitude on the order of 6.5 or larger.

The San Andreas fault is considered to be the major tectonic feature of California, separating the Pacific Plate and the North American Plate. While estimates vary, the San Andreas fault is generally thought to have an average slip rate on the order of 24mm/yr and capable of generating large magnitude events on the order of 7.5.

The Elsinore fault zone is one of the largest in southern California. At its northern end it splays into two segments and at its southern end it is cut by the Yuba Wells fault. The primary sense of slip along the Elsinore fault is right lateral strike-slip. It is believed that the Elsinore fault zone is capable of producing an earthquake magnitude on the order of 6.5 to 7.5.

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The Cucamonga fault is considered to be part of the Sierra Madre fault system which marks the southern boundary of the San Gabriel Mountains. This is a north dipping thrust fault which is believed to be responsible for the uplift of the San Gabriel Mountains. It is believed that the Cucamonga fault is capable of producing an earthquake magnitude on the order of 7.0.

Current standards of practice included a discussion of all potential earthquake sources within a 100 kilometer (62 mile) radius. However, while there are other large earthquake faults within a 100 kilometer (62-mile) radius of the site, none of these are considered as relevant to the site as the faults described above, due to their closer distance and larger anticipated magnitudes.

Historical Seismicity

In order to obtain a general perspective of the historical seismicity of the site and surrounding region, a search was conducted for seismic events at and around the area within various radii. This search was conducted utilizing the historical seismic search program by EPI Software, Inc. (Reeder, 2000). This program conducts a search of a user selected cataloged seismic events database, within a specified radius and selected magnitudes, and then plots the events onto an overlay map of known faults. For this investigation the database of seismic events utilized by the EPI program was obtained from the Southern California Seismic Network (SCSN) available from the Southern California Earthquake Center. At the time of our search the data base contained data from January 1, 1932 through December 31, 2010.

In our first search, the general seismicity of the region was analyzed by selecting an epicenter map listing all events of magnitude 4.0 and greater, recorded since 1932, within a 100 kilometer (62 mile) radius of the site, in accordance with guidelines of the California Division of Mines and Geology. This map illustrates the regional seismic history of moderate to large events. As depicted on Enclosure A-4, within Appendix A, the site lies within a relatively active region associated with the San Jacinto and the San Andreas faults trending southeast to northwest. Of these events, the closest was a magnitude 4.1 located approximately 10 kilometers (6.2 miles) north of the site.

In the second search, the micro seismicity of the area lying within a 10 kilometer (9.2 miles) radius of the site was examined by selecting an epicenter map listing events on the order of 0.0 and greater since 1978. In addition, only the "A" events, or most accurate events were selected. Caltech indicates the accuracy of the "A" events to be approximately 1

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kilometer. The results of this search is a map that presents the seismic history around the area of the site with much greater detail, not permitted on the larger map. The reason for limiting the events to the last 30 ± years on the detail map is to enhance the accuracy of the map. Events recorded prior the mid 1970's are generally considered to be less accurate due to advancements in technology. As depicted on this map, Enclosure A-5, the San Jacinto fault appears to be the source of numerous events, roughly coinciding with the surface trace of this fault.

In summary, the historical seismicity of the site entails numerous small to medium magnitude earthquake events occurring in the region around the subject site, predominately associated with the presence of the San Jacinto, and San Andreas faults. Any future developments at the subject site should anticipate that moderate to large seismic events could occur very near the site.

Secondary Seismic Hazards

Other secondary seismic hazards generally associated with severe ground shaking during an earthquake include liquefaction, seismic-induced settlement, seiches and tsunamis, earthquake induced flooding, landsliding, and rockfalls.

Liquefaction: The potential for liquefaction generally occurs during strong ground shaking within loose, granular sediments where the groundwater is usually less than 50 feet. As the depth to groundwater is on the order of one hundred feet the potential for liquefaction is considered nil.

Seiches/Tsunamis: The potential for the site to be affected by a seiche or tsunami (earthquake generated wave) is considered nil due to the absence of any large bodies of water near the site.

Flooding (Water Storage Facility Failure): There are no large water storage facilities located on or near the site which could possibly rupture during an earthquake and affect the site by flooding.

Seismically-Induced Landsliding: Due to the low relief of the site and surrounding region, the potential for landslides to occur at the site is considered nil.

Rockfalls. No large, exposed, loose or unrooted boulders are present above the site that would affect the integrity of the site.

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SOILS AND SEISMIC DESIGN CRITERIA (California Building Code 2016)

Section 1613 of Chapter 16 of the 2016 California Building Code (CBC) contains the procedures and definitions for the calculations of the earthquake loads on structures and non structural components that are permanently attached to structures and their supports and attachments.

It should be noted that the classification of use and occupancy of all proposed structures at the site, and thus design requirements, shall be the responsibility of the structural engineer and the building official.

CBC Earthquake Design Summary

The following earthquake design criteria have been formulated for the site utilizing the source referenced above.

However, these values should be reviewed by the building official (Risk Category) and structural engineer and the final design should be performed by a qualified structural engineer familiar with the region.

CBC 2016 SEISMIC DESIGN SUMMARY (ASCE 7-10)* Site Location (USGS WGS84) 33.9169, -117.1561, Risk Category II	
Site Class Definition Chapter 20 ASCE 7	D
S_s Mapped Spectral Response Acceleration at 0.2s Period, (Figure 1613.3.1(1))	2.114
S₁ Mapped Spectral Response Acceleration at 1s Period, (Figure 1613.3.3(2))	0.955
F_a Short Period Site Coefficient at 0.2s Period, (Table 1613.3.3(1))	1.0
F_v Long Period Site Coefficient at 1s Period, (Table 1613.3.3(2))	1.5
S_{MS} Adjusted Spectral Response Acceleration at 0.2s Period, (eq .16-37)	2.114
S_{M1} Adjusted Spectral Response Acceleration at 1s Period, (eq .16-38)	1.432
S_{DS} Design Spectral Response Acceleration at 0.2s Period, (eq .16-39)	1.409
S_{D1} Design Spectral Response Acceleration at 1s Period, (eq .16-40)	0.955
Seismic Design Category - Short Period (Table 1613.3.5(1))	E
Seismic Design Category - Long Period (Table 1613.3.5(2))	E
*Values obtained from U.S.G.S. online U.S. Seismic Design Maps tool	

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INFILTRATION TESTING AND TEST RESULTS

Two double ring infiltration tests were conducted at the locations requested and illustrated on Enclosure A-2. As requested, test pits were excavated to depths of approximately 4 feet below the existing ground surface and a 12-inch diameter casing was installed within the center of the test locations with a 24-inch diameter casing centered around it. Each casing was imbedded to a depth of approximately 3.5-inches. These liners extended approximately 16.5-inches above the bottom of the test location. The test locations were tested immediately after the casings were installed by filling both the inside and outside casings and maintaining a water level to a depth of approximately 3.5 and 4-inches.

The testing procedure was as follows:

Both the inside and outside areas of the casings were filled with water to a level of approximately 3.5 and 4-inches above the ground surface. Water was then metered to maintain this water level within both rings. The volume of water use in a given time period was recorded at various time intervals to establish the infiltration rate of the water within the inner ring. See the attached Infiltration Test Data sheets, Enclosures D-1 and D-2 within Appendix D for the test information and measurements.

The infiltration rate is measured as the drop in water level compared to the permeability of the bottom surface area soils in the bottom of the test hole. If casing is not used, the water column in the test hole is allowed to seep into both the bottom and sidewalls of the hole, for which the drop in water level must be corrected and reduced for the volume of water seeping into the sidewall and for the diameter of the test hole. As described above, the tests described herein were conducted using a 12-inch diameter inner casing and 24-inch diameter outer casing.

The test holes were found to have the following measured clear water infiltration rates:

Infiltration Test No.	Infiltration Rate*	
	gal/sf/day	in/hr
DRI-1	22.7	1.7
DRI-2	22.5	1.7
* Rounded final reading		

Our test data indicates decent infiltration rates of the soils tested.

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CONCLUSIONS

On the basis of our field investigation and testing program, it is the opinion of LOR Geotechnical Group, Inc., that the proposed development is feasible from a soil engineering standpoint, provided the recommendations presented in this report are incorporated into design and implemented during grading and construction.

Based upon the field investigation and test data, it is our opinion that the surficial layer of existing fill/topsoil materials that covers the site, as well as the upper portions of the alluvial soil will not, in their present conditions, provide uniform and/or adequate support for the proposed structures. However, the removal and recompaction of existing on-site soils will be an acceptable solution. Our in-place density results indicated variable conditions of the existing fills and upper portions of the alluvial materials ranging from loose to medium dense states. In addition, a potential for hydro-collapse of approximately 10 percent was exhibited by the upper alluvial units, as shown in the laboratory test results presented within Appendix C. Left as is, this condition could cause unacceptable differential and/or overall settlements upon application of the anticipated foundation loads.

To provide adequate support for the proposed structure, we recommend a compacted fill mat be constructed beneath footings and slabs. This compacted fill mat will provide a dense, high-strength soil layer to uniformly distribute the anticipated foundation loads over the underlying soils. In addition, the construction of this compacted fill mat will allow for the removal of the existing fills and the loose, moderately collapsible alluvial soil within the building pad area. Conventional foundation systems, using either individual spread footings and/or continuous wall footings, will provide adequate support for the anticipated downward and lateral loads when utilized in conjunction with the recommended fill mat.

Soil Expansiveness

As noted by our subsurface explorations and laboratory testing, the site surficial soils primarily consist of lean clay with sand and silty sand with trace of clay that possess a low expansion potential. Therefore, recommendations for low expansive soils are given in the Foundation Design, Building Area Slab-on-Grade, and Exterior Flatwork sections of this report.

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Geologic Mitigations

No special mitigation methods are deemed necessary at this time, other than the geotechnical recommendations provided in the following sections.

Seismicity

Seismic ground rupture is generally considered most likely to occur along pre-existing active faults. Since no faults are known to exist at, or project into the site, the probability of ground surface rupture occurring at the site is considered nil.

Due to the site's close proximity to the San Jacinto and San Andreas faults described above, it is reasonable to expect a very strong ground motion seismic event to occur during the lifetime of the proposed development on the site. Large earthquakes could occur on other faults in the general area, but because of their lesser anticipated magnitude and/or greater distance, they are considered less significant than the San Jacinto and San Andreas fault zones from a ground motion standpoint.

The effects of ground shaking anticipated at the subject site, should be mitigated by the seismic design requirements and procedures outlined in Chapter 16 of the California Building Code. However, it should be noted that the current building code requires the minimum design to allow a structure to remain standing after a seismic event, in order to allow for safe evacuation. A structure built to code may still sustain damage which might ultimately result in the demolishing of the structure (Larson and Slosson, 1992).

RECOMMENDATIONS

General Site Grading

It is imperative that no clearing and/or grading operations be performed without the presence of a qualified geotechnical engineer. An on-site, pre-job meeting with the developer, the contractor, the jurisdictional agency, and the geotechnical engineer should occur prior to all grading related operations. Operations undertaken at the site without the geotechnical engineer present may result in exclusion of affected areas from the final compaction report for the project.

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Grading of the subject site should be performed in accordance with the following recommendations as well as applicable portions of the California Building Code, and/or applicable local ordinances.

All areas to be graded should be stripped of significant vegetation and other deleterious materials. Such materials may not be used as engineered fill.

All uncontrolled fills encountered during site preparation should be completely removed, cleaned of significant deleterious materials, and may then be reused as compacted fill. Uncontrolled fills were identified at the site during this study to a depth on the order of 2 feet.

It is our recommendation that all existing uncontrolled and/or undocumented fills under any proposed flatwork and paved areas should be removed and replaced with engineered compacted fill. If this is not done, premature structural distress (settlement) of the flatwork and pavement may occur.

Cavities created by removal of subsurface obstructions should be thoroughly cleaned of loose soil, organic matter and other deleterious materials, shaped to provide access for construction equipment, and backfilled as recommended in the following Engineered Compacted Fill section of this report.

Initial Site Preparation

All existing uncontrolled fills and loose, hydro-collapsible alluvial materials should be removed from structural areas and areas to receive structural fills. The data developed during this investigation indicates that removals on the order of 10 to 12 feet will be required to encounter competent alluvium. Areas adjacent to the existing structure to within approximately 12 feet, are anticipated to encounter engineered compacted fill previously placed during rough grading for the structure. Removals for the new structure should expose these materials prior to reaching the existing building. Competent alluvium is defined as damp, medium dense to dense materials with a minimum relative compaction of 83 percent (ASTM D 1557).

Remedial removals on the order of 2 to 4 feet in depth are anticipated to be required within planned parking, driveway, and flatwork areas in order to eliminate the existing uncontrolled fills.

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The actual depths of removal should be verified during the grading operation by observation and in-place density testing.

Preparation of Fill Areas

After conducting the removals discussed above and prior to placing fill, the surfaces of all areas to receive fill should be scarified to a depth of at least 12 inches. The scarified soil should be brought to near optimum moisture content and recompacted to a relative compaction of at least 90 percent (ASTM D 1557).

Preparation of Building Pad Areas

All footings should rest upon a minimum of 24 inches of properly compacted fill material placed over competent alluvium. In areas where the required fill thickness is not accomplished by the removal of the existing fill and loose alluvial materials and site rough grading, the footing areas should be further subexcavated to a depth of at least 24 inches below the proposed footing base grade, with the subexcavation extending at least 5 feet beyond the footing lines. Where deeper removals in excess of 5 feet are required, these removals should extend laterally at a 1:1 ratio. The bottom of this excavation should then be scarified to a depth of at least 12 inches, brought to near optimum moisture content, and recompacted to at least 90 percent relative compaction (ASTM D 1557) prior to refilling the excavation to grade as properly compacted fill.

Along the northern, eastern, and southern portion of the restaurant/commercial building, removals will need to extend eastward beyond the footing line in order to provide the above recommended 1:1 ratio. As previously mentioned, areas adjacent to the existing structure to within approximately 12 feet, are anticipated to encounter engineered compacted fill previously placed during rough grading for the structure. Removals for the new structure should expose these materials prior to reaching the existing building.

To provide adequate support, concrete slabs-on-grade should bear on a minimum of 12 inches of compacted soil. During rough grading, the remedial removals recommended above will most likely provide the recommended 12 inches of compacted soil for adequate support of concrete slabs-on-grade.

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Engineered Compacted Fill

The on-site soils should provide adequate quality fill material, provided they are free from organic matter and other deleterious materials. Unless approved by the geotechnical engineer, rock or similar irreducible material with a maximum dimension greater than 6-inches should not be buried or placed in fills.

Import fill should be inorganic, non-expansive granular soils free from rocks or lumps greater than 6-inches in maximum dimension. Sources for import fill should be approved by the geotechnical engineer prior to their use.

Fill should be spread in maximum 8-inch loose lifts, each lift brought to near optimum moisture content, and compacted to a relative compaction of at least 90 percent in accordance with ASTM D 1557.

As noted before, the on-site soils have potential for expansion. Therefore, a careful evaluation of on-site and any imported soils for their expansion potential should be conducted during the grading operation.

Short-Term Excavations

Following the California Occupational and Safety Health Act (CAL-OSHA) requirements, excavations 5-feet deep and greater should be sloped or shored. All excavations and shoring should conform to CAL-OSHA requirements.

Short-term excavations of 5-feet deep and greater shall conform to Title 8 of the California Code of Regulations, Construction Safety Orders, Section 1504 and 1539 through 1547. Based on our exploratory borings it appears that Type C soil is the predominant type of soil on the project and all short-term excavations should be based on this type of soil. Deviation from the standard short-term slopes are permitted using Option 4, Design by a Registered Professional Engineer (Section 1541.1).

Short-term slope construction and maintenance are the responsibility of the contractor, and should be a consideration of his methods of operation and the actual soil conditions encountered.

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Soil Expansiveness

The upper materials encountered during this investigation were observed to be granular and considered to have a low expansion potential. Therefore, specialized construction procedures to specifically resist expansive soil activity are not anticipated at this time. In order to verify this, additional evaluation of on-site and any imported soils for their expansion potential should be conducted following completion of the grading operation.

Foundation Design

If the site is prepared as recommended, the proposed residential buildings may be safely founded on conventional spread foundations, either individual spread footings and/or continuous wall footings, bearing on a minimum of 24 inches of engineered compacted fill. All foundations should have a minimum width of 12 inches and should be established a minimum of 12 inches below lowest adjacent grade.

For the minimum width and depth, footings may be designed using a maximum soil bearing pressure of 1,500 pounds per square foot (psf) for dead plus live loads. This value may be increased by 300 psf for each additional foot of width and by 300 psf for each additional foot of depth, to a maximum of 3,000 psf.

The above values are net pressures; therefore, the weight of the foundations and the backfill over the foundations may be neglected when computing dead loads. The values apply to the maximum edge pressure for foundations subjected to eccentric loads or overturning. The recommended pressures apply for the total of dead plus frequently applied live loads, and incorporate a factor of safety of at least 3.0. The allowable bearing pressures may be increased by one-third for temporary wind or seismic loading. The resultant of the combined vertical and lateral seismic loads should act within the middle one-third of the footing width. The maximum calculated edge pressure under the toe of foundations subjected to eccentric loads or overturning should not exceed the increased allowable pressure.

Resistance to lateral loads will be provided by passive earth pressure and base friction. For footings bearing against compacted fill, passive earth pressure may be considered to be developed at a rate of 300 pounds per square foot per foot of depth. Base friction may be computed at 0.30 times the normal load. Base friction and passive earth pressure may be combined without reduction.

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Footings on low expansive soils should be reinforced with a minimum of two #4 rebars, one near the top and one near the bottom of the footings.

The preceding recommendations to counteract low expansive soil activity should be considered preliminary and should be revised upon the completion of the site grading. More stringent parameters for design of foundations on expansive soils can be specified by a structural engineer experienced in these matters.

Settlement

Total settlement of individual foundations will vary depending on the width of the foundation and the actual load supported. Maximum settlement of shallow foundations designed and constructed in accordance with the preceding recommendations are estimated to be on the order of 0.5 inch. Differential settlement between adjacent footings should be about one-half of the total settlement. Settlement of all foundations is expected to occur rapidly, primarily as a result of elastic compression of supporting soils as the loads are applied, and should be essentially completed shortly after initial application of the loads.

Building Pad Slab-On-Grade Design

Concrete floor slabs should bear on a minimum of 24 inches of engineered fill compacted to at least 90 percent (ASTM D 1557) placed over competent alluvium. This will most likely be accomplished during the recommended removals previously mentioned. The final pad surfaces should be rolled to provide smooth, dense surfaces upon which to place the concrete.

Because low expansive soils are present at the site, slab areas should be properly pre-soaked prior to pouring concrete. Slab areas should be pre-soaked to approximately 2 percent above the optimum moisture content to a minimum depth of 12 inches. Unless more stringent parameters are given by the structural engineer experienced on expansive soil design, the slab thickness should be a minimum of 4 inches. Minimum slab reinforcement should consist of #3 rebars placed at a maximum spacing of 18 inches on center, each way.

Slabs to receive moisture-sensitive coverings should be provided with a moisture vapor barrier. This barrier may consist of an impermeable membrane. Two inches of sand over the membrane will reduce punctures and aid in obtaining a satisfactory concrete cure. The sand should be moistened just prior to placing of concrete.

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The slabs should be protected from rapid and excessive moisture loss which could result in slab curling. Careful attention should be given to slab curing procedures, as the site area is subject to large temperature extremes, humidity, and strong winds.

The preceding recommendations to counteract low expansive soil activity should be considered preliminary and are subject to the review and approval of the project structural engineer. These recommendations should be also revised upon the completion of the site grading.

Exterior Flatwork

To provide adequate support, exterior flatwork improvements should rest on a minimum of 12 inches of soil compacted to at least 90 percent (ASTM D 1557).

Because low expansive soils are present at the site, flatwork areas should be pre-soaked prior to pouring concrete to a minimum depth of 12 inches and to approximately 2 percent above the optimum moisture content. All sidewalks, patio slabs, and driveways with a minimum dimension greater than 5 feet, should be reinforced with #3 rebars placed at a maximum spacing of 18 inches on center, each way. Reinforcement for curbing should be one continuous #4 rebar at top and bottom. In addition, it is recommended that sidewalks, patio slabs, curbs, etc., have a thickness of at least 4 inches, with saw cuts every 10 feet or less. Driveways should be at least 8 inches (per city standard 112) thick, with saw cuts every 15 feet or less.

Flatwork surface should be sloped a minimum of 1 percent away from buildings and slopes, to approved drainage structures.

Again, the recommendations given to counteract low expansive soil activity should be considered preliminary and should be revised upon the completion of the site grading.

Wall Pressures

The design of footings for walls below grade (basement or pit walls, etc.) and retaining structures should be performed in accordance with the recommendations described earlier under Preparation of Building Pad Areas and Foundation Design. For design of retaining wall footings, the resultant of the applied loads should act in the middle one-third of the

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footing, and the maximum edge pressure should not exceed the basic allowable value without increase.

For design of retaining walls unrestrained against movement at the top, we recommend an equivalent fluid density of 35 pounds per cubic foot (pcf) be used. This assumes level backfill consisting of recompacted, non-expansive, native soils placed against the structures and with the backcut slope extending upward from the base of the stem at 35 degrees from the vertical or flatter.

As noted before, expansive soils are present at the site. Since these materials have a very low permeability very uncertain behavior, and exert much higher lateral earth pressures on retaining structures, they should not be used as wall backfills.

To avoid overstressing or excessive tilting during placement of backfill behind walls, heavy compaction equipment should not be allowed within the zone delineated by a 45 degree line extending from the base of the wall to the fill surface. The backfill directly behind the walls should be compacted using light equipment such as hand operated vibrating plates and rollers. No material larger than 3-inches in diameter should be placed in direct contact with the wall.

Wall pressures should be verified prior to construction, when the actual backfill materials and conditions have been determined. Recommended pressures are applicable only to level, non-expansive, properly drained backfill (with no additional surcharge loadings). If inclined backfills are proposed, this firm should be contacted to develop appropriate active earth pressure parameters. Toe bearing pressure for non-structural walls on soils, not prepared as described earlier under Preparation of Foundation Areas, should not exceed California Building Code values, (CBC Table 18-1.A).

Preliminary Pavement Design

Testing and design for preliminary on-site pavement was conducted in accordance with the Caltrans Highway Design Manual. Based upon our preliminary sampling and testing, and upon assumed Traffic Indices, it appears that the structural sections tabulated below should provide satisfactory pavements for the subject development:

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AREA	T.I.	DESIGN R-VALUE	PRELIMINARY SECTION
On-site parking and drive aisles	5.0	20	0.25' AC/0.60' AB
Local Street - Kimberly Avenue	6.0	20	0.30' AC*/0.85' CAB
AC - Asphalt Concrete AB - Class 2 Aggregate Base or equivalent CAB - Crushed Aggregate Base * Minimum thickness per the City of Moreno Valley Standard Plans No. 100A approved 09/18			

The above structural sections are predicated upon 90 percent relative compaction (ASTM D 1557) of all utility trench backfills and 95 percent relative compaction (ASTM D 1557) of the upper 12 inches of street subgrade soils and of any aggregate base utilized. In addition, the on-site aggregate base should meet Caltrans specifications for Class 2 Aggregate Base and the aggregate base within the City right-of-way should meet Greenbook specifications for Crushed Aggregate Base.

In areas of the pavement which will receive high abrasion loads due to start-ups and stops, or where trucks will move on a tight turning radius, consideration should be given to installing concrete pads. Such pads should contain a minimum of 0.50 foot thick concrete with a 0.35 foot thick aggregate base. Concrete pads are also recommended in areas adjacent to trash storage areas where heavier loads will occur due to operation of trucks lifting trash dumpsters. The minimum compressive strength of concrete paving should be 3,250 psi.

It should be noted that all of the above pavement design was based upon the results of preliminary sampling and testing, and should be verified by additional sampling and testing during construction when the actual subgrade soils are exposed.

Sulfate Protection

The results of the sulfate tests conducted on selected subgrade soils expected to be encountered at foundation levels are presented in Appendix C.

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Based on the test results it appears that there is a negligible sulfate exposure to concrete elements in contact with on site soils. The 2016 CBC, therefore, does not recommend special design criteria for concrete elements in contact with such materials.

Infiltration Basin

Due to the presence of hydro-collapsible soils at the site and adjacent properties, infiltration of water into the upper approximately 10 to 12 feet is not recommended. While the remedial grading recommended within this report is anticipated to mitigate such soils within the proposed building areas of the site, the presence of hydro-collapsible soils on neighboring properties is most likely and the introduction of water into such soils could have an adverse effect on those developments.

Construction Monitoring

Post investigative services are an important and necessary continuation of this investigation. Project plans and specifications should be reviewed by the project geotechnical consultant prior to construction to confirm that the intent of the recommendations presented in this report have been incorporated into the design. Additional R-Value, expansion index, and soluble sulfate testing may be required after/during site rough grading.

During construction, sufficient and timely geotechnical observation and testing should be provided to correlate the findings of this investigation with the actual subsurface conditions exposed during construction. Items requiring observation and testing include, but are not necessarily limited to, the following:

1. Site preparation-stripping and removals.
2. Excavations, including approval of the bottom of excavation prior to backfilling.
3. Scarifying and recompacting prior to fill placement.
4. Subgrade preparation for pavements and slabs-on-grade.

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5. Placement of engineered compacted fill and backfill, including approval of fill materials and the performance of sufficient density tests to evaluate the degree of compaction being achieved.

LIMITATIONS

This report contains geotechnical conclusions and recommendations developed solely for use by Mr. Parmjit Singh, and their design consultants, for the purposes described earlier. It may not contain sufficient information for other uses or the purposes of other parties. The contents should not be extrapolated to other areas or used for other facilities without consulting LOR Geotechnical Group, Inc.

The recommendations are based on interpretations of the subsurface conditions concluded from information gained from subsurface explorations and a surficial site reconnaissance. The interpretations may differ from actual subsurface conditions, which can vary horizontally and vertically across the site. If conditions are encountered during the construction of the project, which differ significantly from those presented in this report, this firm should be notified immediately so we may assess the impact to the recommendations provided. Due to possible subsurface variations, all aspects of field construction addressed in this report should be observed and tested by the project geotechnical consultant.

If parties other than LOR Geotechnical Group, Inc. provide construction monitoring services, they must be notified that they will be required to assume responsibility for the geotechnical phase of the project being completed by concurring with the recommendations provided in this report or by providing alternative recommendations.

The report was prepared using generally accepted geotechnical engineering practices under the direction of a state licensed geotechnical engineer. No warranty, expressed or implied, is made as to conclusions and professional advice included in this report. Any persons using this report for bidding or construction purposes should perform such independent investigations as deemed necessary to satisfy themselves as to the surface and subsurface conditions to be encountered and the procedures to be used in the performance of work on this project.

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November 21, 2018

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TIME LIMITATIONS


The findings of this report are valid as of this date. Changes in the condition of a property can, however, occur with the passage of time, whether they be due to natural processes or the work of man on this or adjacent properties. In addition, changes in the Standards-of-Practice and/or Governmental Codes may occur. Due to such changes, the findings of this report may be invalidated wholly or in part by changes beyond our control. Therefore, this report should not be relied upon after a significant amount of time without a review by LOR Geotechnical Group, Inc. verifying the suitability of the conclusions and recommendations.


CLOSURE


It has been a pleasure to assist you with this project. We look forward to being of further assistance to you as construction begins. Should conditions be encountered during construction that appear to be different than indicated by this report, please contact this office immediately in order that we might evaluate their effect.

Should you have any questions regarding this report, please do not hesitate to contact our office at your convenience.

Respectfully submitted,
LOR Geotechnical Group, Inc.


Andrew A. Tardie
Staff Geologist


Robert M. Markoff, CEG 2073
Engineering Geologist


John P. Leuer, GE 2030
President

AAT:RMM:JPL/ss



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Harry Heady via email hheady@headydesign.com

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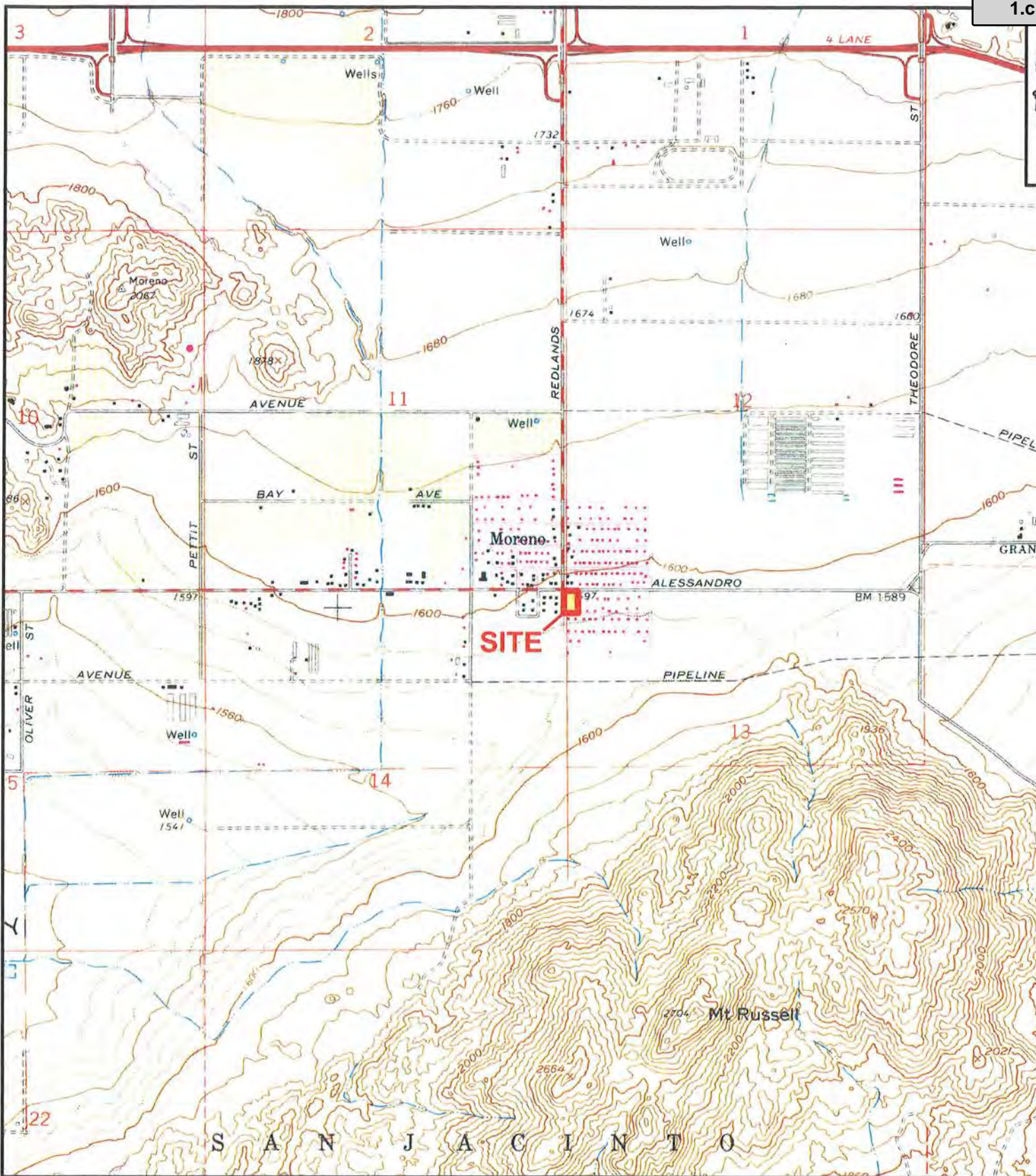
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U.S.G.S., 2018, U.S. Seismic Design Maps, earthquake.usgs.gov/designmaps/us/application.php

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APPENDIX A

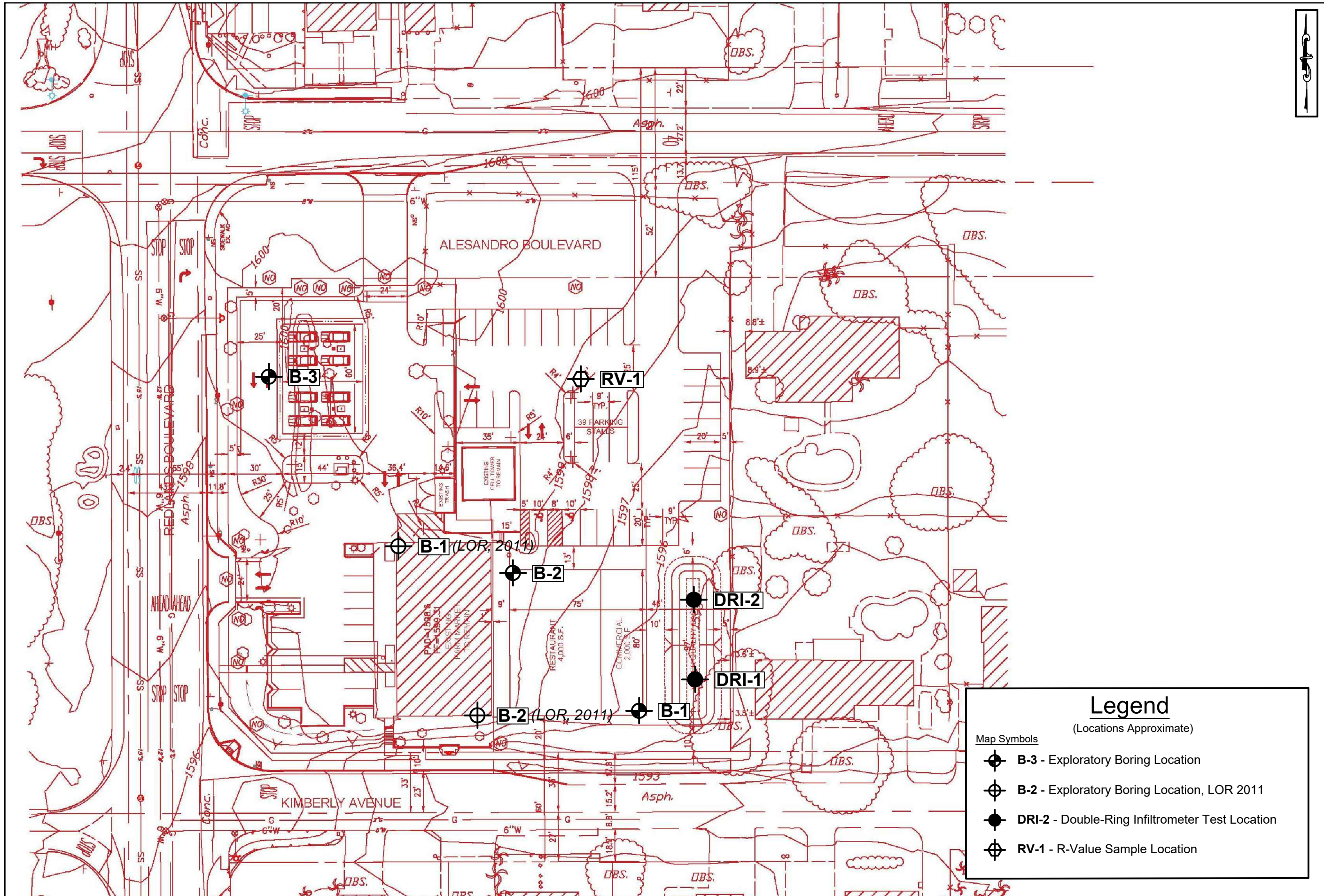
Index Map, Site Plan, Regional Geologic Map, and Historical Seismicity Maps



INDEX MAP





Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

PROJECT:	PROPOSED GAS STATION AND RESTAURANT, MORENO VALLEY, CALIFORNIA	PROJECT NO:	12765
CLIENT:	MR. PARMJIT SINGH	ENCLOSURE:	/
LOR Geotechnical Group, Inc.		DATE:	OCTOBER 20
		SCALE:	1" = 2000'



Legend
(Locations Approximate)

Map Symbols

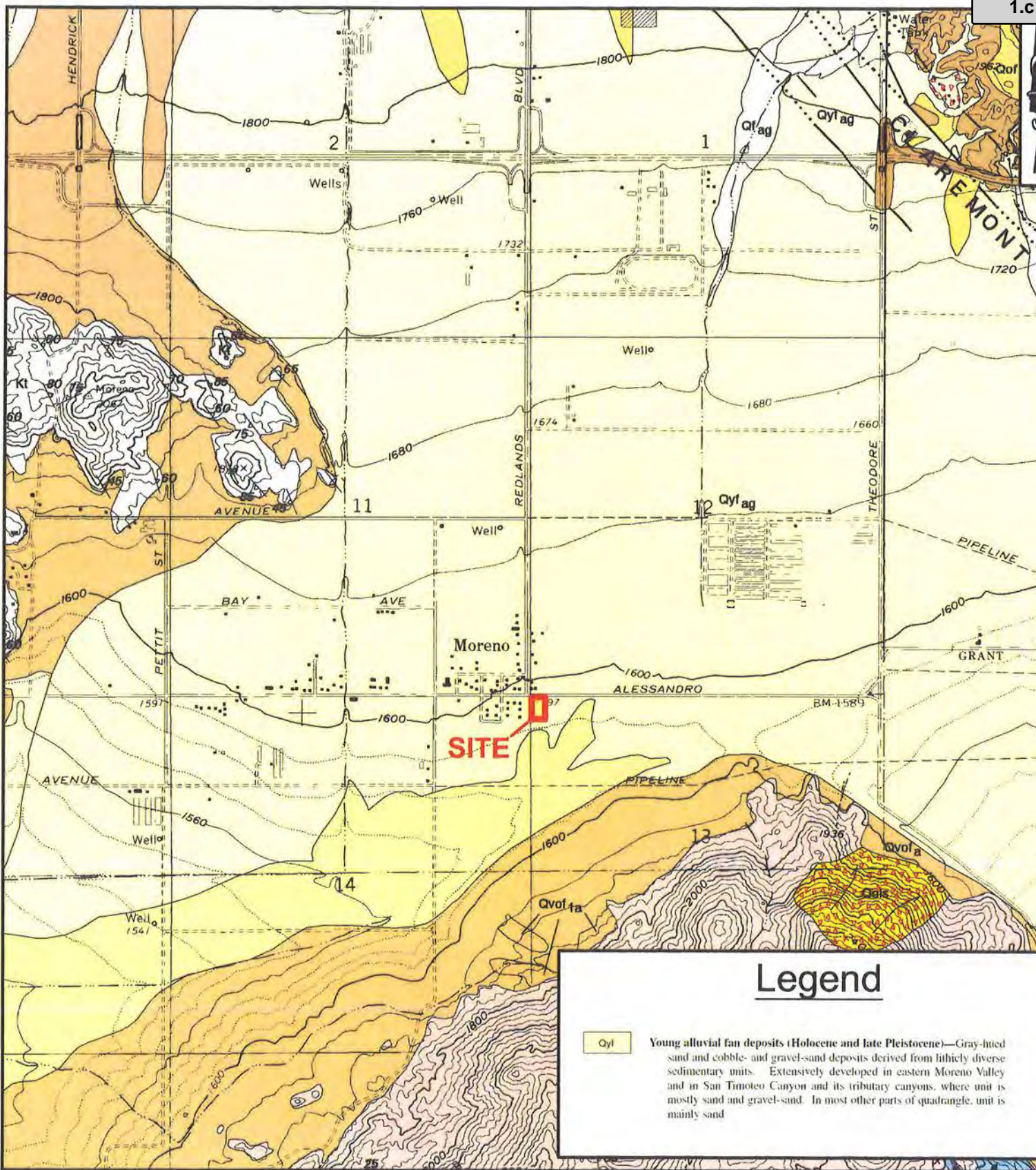
-  B-3 - Exploratory Boring Location
-  B-2 - Exploratory Boring Location, LOR 2011
-  DRI-2 - Double-Ring Infiltrometer Test Location
-  RV-1 - R-Value Sample Location

SITE PLAN

PROJECT: PROPOSED GAS STATION AND RESTAURANT, MORENO VALLEY, CALIFORNIA	PROJECT NO.: 12765.11
CLIENT: MR. PARMJIT SINGH	ENCLOSURE: A-2
	DATE: OCTOBER 2018
	SCALE: 1" = 50'

LOR Geotechnical Group, Inc.

Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

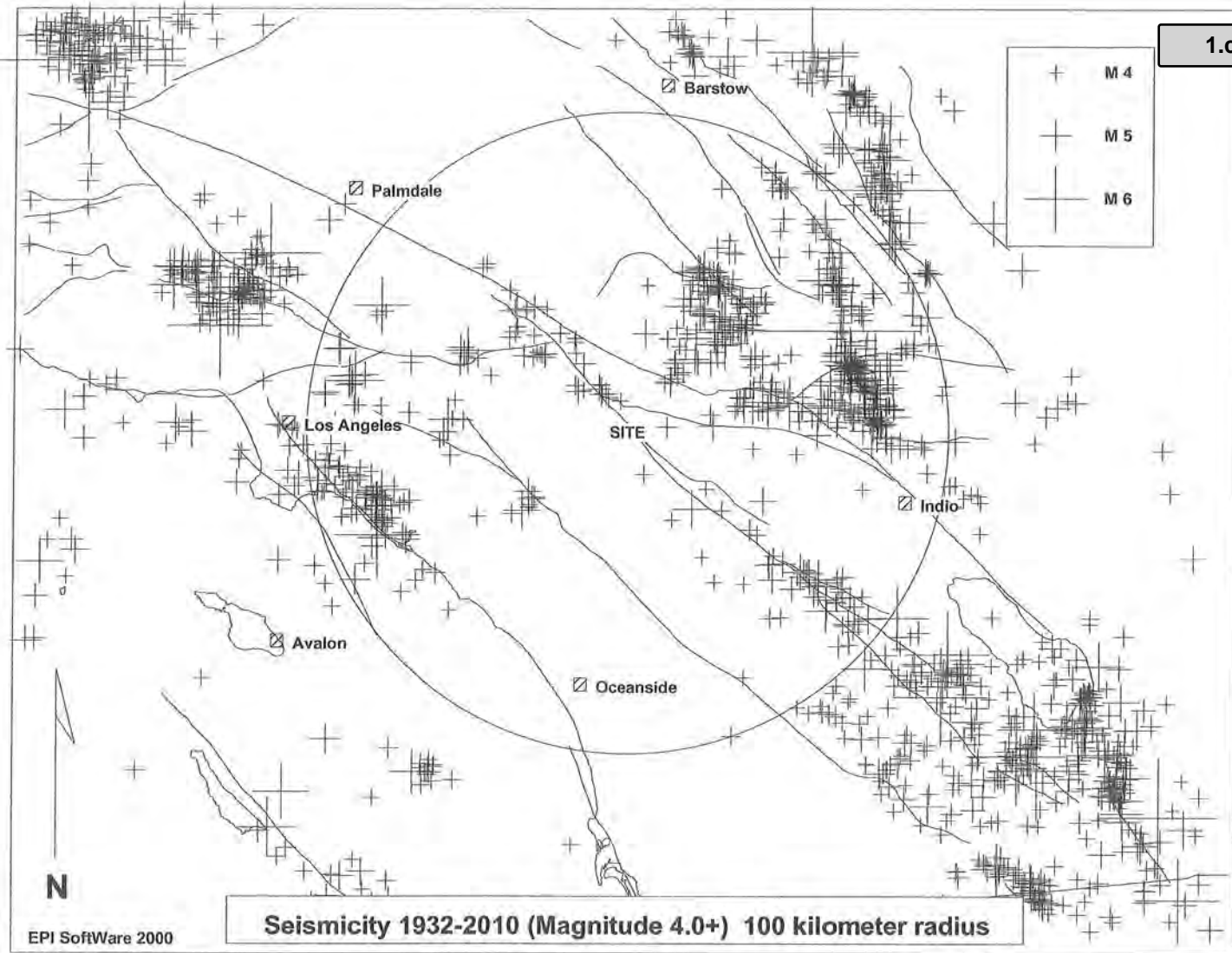


Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

REGIONAL GEOLOGIC MAP

(Morton & Matti, 199

PROJECT:	PROPOSED GAS STATION AND RESTAURANT, MORENO VALLEY, CALIFORNIA	PROJECT NO:	12765.
CLIENT:	MR. PARMJIT SINGH	ENCLOSURE:	A
LOR Geotechnical Group, Inc.		DATE:	OCTOBER 201
		SCALE:	1" = 2000'



SITE LOCATION: 33.9169 LAT. -117.1561 LONG.

MINIMUM LOCATION QUALITY: C

TOTAL # OF EVENTS ON PLOT: 1506

TOTAL # OF EVENTS WITHIN SEARCH RADIUS: 603

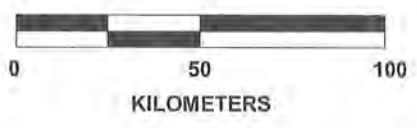
MAGNITUDE DISTRIBUTION OF SEARCH RADIUS EVENTS:

- 4.0- 4.9 : 543
- 5.0- 5.9 : 55
- 6.0- 6.9 : 4
- 7.0- 7.9 : 1
- 8.0- 8.9 : 0

CLOSEST EVENT: 4.1 ON SATURDAY, FEBRUARY 13, 2010 LOCATED APPROX. 10 KILOMETERS NORTH OF THE SITE

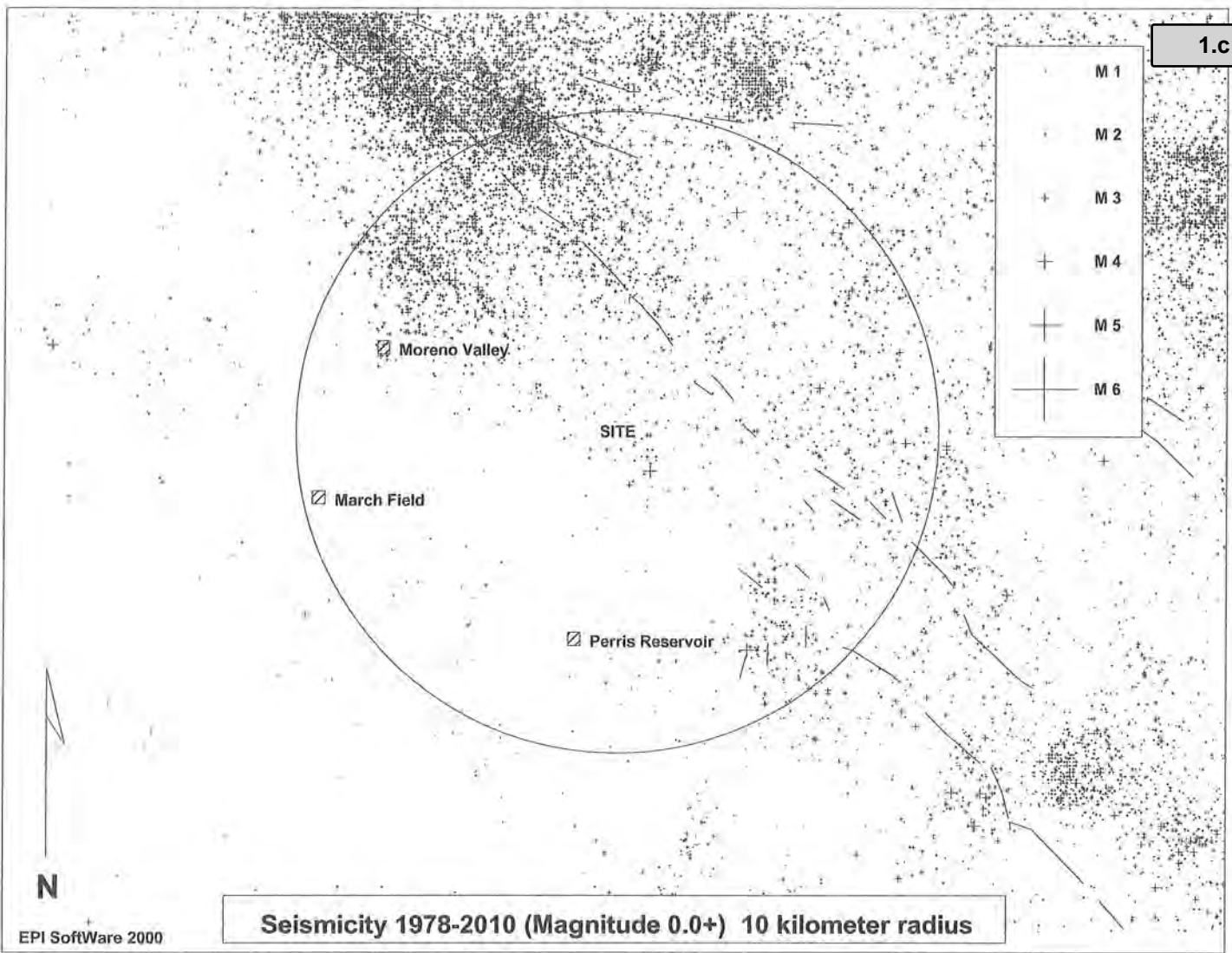
LARGEST 5 EVENTS:

- 7.3 ON SUNDAY, JUNE 28, 1992 LOCATED APPROX. 73 KILOMETERS NORTHEAST OF THE SITE
- 6.4 ON SATURDAY, MARCH 11, 1933 LOCATED APPROX. 84 KILOMETERS SOUTHWEST OF THE SITE
- 6.3 ON SUNDAY, JUNE 28, 1992 LOCATED APPROX. 43 KILOMETERS NORTHEAST OF THE SITE
- 6.1 ON THURSDAY, APRIL 23, 1992 LOCATED APPROX. 77 KILOMETERS EAST OF THE SITE
- 6.0 ON SATURDAY, DECEMBER 04, 1948 LOCATED APPROX. 76 KILOMETERS EAST OF THE SITE



ENCLOSURE A-4

Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)



Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

SITE LOCATION: 33.9169 LAT. -117.1561 LONG.

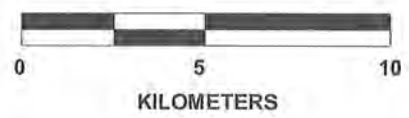
MINIMUM LOCATION QUALITY: A

TOTAL # OF EVENTS ON PLOT: 11223

TOTAL # OF EVENTS WITHIN SEARCH RADIUS: 2981

MAGNITUDE DISTRIBUTION OF SEARCH RADIUS EVENTS:

- 0.0- .9 : 420
- 1.0- 1.9 : 2184
- 2.0- 2.9 : 363
- 3.0- 3.9 : 13
- 4.0- 4.9 : 1
- 5.0- 5.9 : 0
- 6.0- 6.9 : 0
- 7.0- 7.9 : 0
- 8.0- 8.9 : 0



CLOSEST EVENT: 1.0 ON FRIDAY, NOVEMBER 21, 2008 LOCATED APPROX. .3 KILOMETER OF THE SITE

LARGEST 5 EVENTS:

- 4.1 ON SATURDAY, FEBRUARY 13, 2010 LOCATED APPROX. 9 KILOMETERS NORTH OF THE SITE
- 3.8 ON MONDAY, JULY 10, 2006 LOCATED APPROX. 7 KILOMETERS SOUTHEAST OF THE SITE
- 3.8 ON THURSDAY, SEPTEMBER 12, 1996 LOCATED APPROX. 1 KILOMETERS SOUTHEAST OF THE SITE
- 3.6 ON SATURDAY, JUNE 04, 1988 LOCATED APPROX. 7 KILOMETERS NORTHEAST OF THE SITE
- 3.5 ON TUESDAY, OCTOBER 13, 1987 LOCATED APPROX. 7 KILOMETERS NORTHWEST OF THE SITE

ENCLOSURE A-5

APPENDIX B

Field Investigation Program and Boring Logs

Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

APPENDIX B FIELD INVESTIGATION

Subsurface Exploration

Our subsurface exploration of the site consisted of drilling a total of three exploratory borings to depths ranging from approximately 26.5 to 51.5 feet below the existing ground surface using a Mobile B-61 drill rig on October 26, 2018. The approximate locations of the borings are shown on Enclosure A-2.

The drilling exploration was conducted using a Mobile B-61 drill rig equipped with 8-inch diameter hollow stem augers. The soils encountered within the borings were continuously logged by a geologist from this firm who inspected the site, created detailed logs of the borings, obtained undisturbed, as well as disturbed, soil samples for evaluation and testing, and classified the soils by visual examination in accordance with the Unified Soil Classification System.

Relatively undisturbed samples of the subsoils were typically obtained at a maximum interval of 5 feet. The samples were recovered by using a California split barrel sampler of 2.40-inch inside diameter and 3.25-inch outside diameter from the ground surface to the maximum depths attained. The samplers were driven by a 140-pound automatic trip hammer dropped from a height of 30 inches. The number of hammer blows required to drive the sampler into the ground the final 12 inches were recorded and further converted to an equivalent SPT N-values, which are included in the boring logs, Enclosures B-1 through B-3.

The undisturbed soil samples were retained in brass sample rings of 2.42 inches in diameter and 1.00 inch in height, and placed in sealed plastic containers. Disturbed soil samples were obtained at selected levels within the borings and placed in sealed containers for transport to our geotechnical laboratory.

All samples obtained were taken to our geotechnical laboratory for storage and testing. Detailed logs of the borings are presented on the enclosed Boring Logs, Enclosures B-1 through B-3. A Boring Log Legend is presented on Enclosure B-i. A Soil Classification Chart is presented as Enclosure B-ii.

CONSISTENCY OF SOIL

SAMPLE KEY

SANDS

SPT BLOWS

CONSISTENCY

0-4	Very Loose
4-10	Loose
10-30	Medium Dense
30-50	Dense
Over 50	Very Dense

COHESIVE SOILS

SPT BLOWS

CONSISTENCY

0-2	Very Soft
2-4	Soft
4-8	Medium
8-15	Stiff
15-30	Very Stiff
30-60	Hard
Over 60	Very Hard

Symbol

Description



- INDICATES CALIFORNIA SPLIT SPOON SOIL SAMPLE
- INDICATES BULK SAMPLE
- INDICATES SAND CONE OR NUCLEAR DENSITY TEST
- INDICATES STANDARD PENETRATION TEST (SPT) SOIL SAMPLE

TYPES OF LABORATORY TESTS

- 1 Atterberg Limits
- 2 Consolidation
- 3 Direct Shear (undisturbed or remolded)
- 4 Expansion Index
- 5 Hydrometer
- 6 Organic Content
- 7 Proctor (4", 6", or Cal216)
- 8 R-value
- 9 Sand Equivalent
- 10 Sieve Analysis
- 11 Soluble Sulfate Content
- 12 Swell
- 13 Wash 200 Sieve

BORING LOG LEGEND

PROJECT:	PROPOSED GAS STATION CANOPY & RESTAURANT	PROJECT NO.: 12765.11
CLIENT:	PARMJIT SINGH	ENCLOSURE: B-i
LOR Geotechnical Group, Inc.		DATE: OCTOBER 2018

Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS
			GRAPH	LETTER	
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS <i>(LITTLE OR NO FINES)</i>		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES <i>(APPRECIABLE AMOUNT OF FINES)</i>		GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		SAND AND SANDY SOILS	CLEAN SANDS <i>(LITTLE OR NO FINES)</i>		SW
	SANDS WITH FINES <i>(APPRECIABLE AMOUNT OF FINES)</i>			SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
			SANDS WITH FINES <i>(APPRECIABLE AMOUNT OF FINES)</i>		SM
	FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
SILTS AND CLAYS		LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY
HIGHLY ORGANIC SOILS				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

PARTICLE SIZE LIMITS

BOULDERS	COBBLES	GRAVEL		SAND			SILT OR CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE	
12"	3"	3/4"	No. 4	No. 10	No. 40	200	
(U.S. STANDARD SIEVE SIZE)							

SOIL CLASSIFICATION CHART

PROJECT	PROPOSED GAS STATION CANOPY & RESTAURANT	PROJECT NO. 12765.11
CLIENT:	PARMJIT SINGH	ENCLOSURE: B-ii
LOR Geotechnical Group, Inc.		DATE: OCTOBER 2018

Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

LOG OF BORING B-1

TEST DATA

DEPTH IN FEET	TEST DATA				SAMPLE TYPE	LITHOLOGY	U.S.C.S.	DESCRIPTION
	SPT BLOW COUNTS	LABORATORY TESTS	MOISTURE CONTENT (%)	DRY DENSITY (PCF)				
0								
11	11	1, 3, 4, 7, 11	4.0	96.8	█	ML CL	@ 0 feet, FILL/TOPSOIL: SANDY SILT , approximately 5% gravel to 2", 10% coarse grained sand, 10% medium grained sand, 15% fine grained sand, 60% silty fines with trace clay, gray-brown, dry.	
5	8 19	2	7.3 8.7	89.7 101.0	█	ML	@ 2 feet, ALLUVIUM: LEAN CLAY with SAND , approximately 5% coarse grained sand, 10% medium grained sand, 15% fine grained sand, 70% clayey fines of low plasticity, gray-brown, dry, some pinhole and slightly larger porosity.	
10	16 21	2	9.0 10.3	100.1 102.2	█		@ 5 feet, SANDY SILT , approximately approximately 5% coarse grained sand, 10% medium grained sand, 15% fine grained sand, 70% silty fines with trace clay, gray-brown, some thin calcite stringers, porous and dry.	
15	25	2	8.3	99.7	█		@ 15 feet, moderately calcified, tan-white, remains porous and dry.	
20	42		10.5	106.4	█			
25	97 for 11"		11.3	116.7	█	CL	@ 25 feet, LEAN CLAY with SAND , approximately 5% coarse grained sand, 10% medium grained sand, 10% fine grained sand, 75% clayey fines of low plasticity, damp to moist, trace pinhole porosity, slightly indurated, red-brown.	
30	76		8.6	123.8	█		@ 30 feet, difficult drilling, water added to facilitate drilling.	
35	58		3.9	117.7	█		@ 35 feet, becomes moderately calcified, damp, tan-white.	
40	60		7.7	114.2	█		@ 40 feet, becomes red-brown, damp, some thin calcite stringers.	
45	75		8.6	119.4	█		@ 45 feet, decrease in clay content, trace calcite stringers.	
50	70		5.5	115.9	█	SM	@ 50 feet, SILTY SAND , approximately 5% gravel to 1/2", 20% coarse grained sand, 25% medium grained sand, 30% fine grained sand, 20% silty fines, yellow-brown, dry to damp.	
55							END OF BORING @ 51.5' Fill to 2' No groundwater No bedrock	


Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

PROJECT: Proposed Gas Station Canopy & Restaurant		PROJECT NUMBER: 12765.11	
CLIENT: Parmjit Singh		ELEVATION:	
LOR GEOTECHNICAL GROUP INC.		DATE DRILLED: October 26, 2018	
		EQUIPMENT: Mobile B-61	
		HOLE DIA.: 8"	ENCLOSURE: B-1

LOG OF BORING B-2

TEST DATA							U.S.C.S.	DESCRIPTION
DEPTH IN FEET	SPT BLOW COUNTS	LABORATORY TESTS	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	SAMPLE TYPE	LITHOLOGY		
0							ML	@ 0 feet, <u>FILL</u> : SANDY SILT, approximately 5% gravel to 1/2", 5% coarse grained sand, 10% medium grained sand, 10% fine grained sand, 70% silty fines, gray-brown, dry.
11	11		6.6	107.0			SM	@ 2 feet, SILTY SAND, approximately 25% coarse grained sand, 25% medium grained sand, 25% fine grained sand, 25% silty fines, brown, damp to moist.
5	6		11.2	96.5			ML	@ 5 feet, <u>ALLUVIUM</u> : SANDY SILT, approximately 15% fine grained sand, 85% silty fines, moist, brown, some pinhole porosity.
	12	2	8.1	97.3				@ 7 feet, becomes tan, dry, slightly larger than pinhole porosity.
10	18		7.1	104.9				@ 10 feet, trace thin calcite stringers.
	26		8.6	105.5				
15	33		6.8	102.0				@ 15 feet, becomes moderately calcite, tan-white, remains dry and slightly porous.
20	40		17.2	95.0				@ 20 feet, becomes moist.
25	59		8.3	117.0			CL	@ 25 feet, LEAN CLAY with SAND, approximately 5% coarse grained sand, 10% medium grained sand, 10% fine grained sand, 75% clayey fines of low plasticity, damp, red-brown, slightly indurated, some thin calcite stringers, trace pinhole porosity.
30								END OF BORING @ 26.5' Fill to 5' No groundwater No bedrock

Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

PROJECT: Proposed Gas Station Canopy & Restaurant		PROJECT NUMBER: 12765.11	
CLIENT: Parmjit Singh		ELEVATION:	
		DATE DRILLED: October 26, 2018	
		EQUIPMENT: Mobile B-61	
		HOLE DIA.: 8"	ENCLOSURE: B-2

LOG OF BORING B-3

TEST DATA

DEPTH IN FEET	TEST DATA				SAMPLE TYPE	LITHOLOGY	U.S.C.S.	DESCRIPTION
	SPT BLOW COUNTS	LABORATORY TESTS	MOISTURE CONTENT (%)	DRY DENSITY (PCF)				
0							ML	@ 0 feet, <u>FILL</u> SANDY SILT, approximately 5% coarse grained sand, 5% medium grained sand, 15% fine grained sand, 75% silty fines, gray-brown, dry.
6	6		10.9	96.3	█			@ 2 feet, <u>ALLUVIUM</u> : SANDY SILT, approximately 5% coarse grained sand, 5% medium grained sand, 15% fine grained sand, 75% silty fines, brown, damp, some pinhole porosity and thin calcite stringers.
5	8		12.5	107.3	█			@ 5 feet, trace pinhole porosity, slightly calcified, tan-white, damp.
10	10		12.1	104.3	█			@ 7 feet, much less calcification as thin stringers, remains porous with pinhole and slightly larger porosity, damp.
10	11		11.9	105.3	█			
15	16		8.1	106.3	█			
15	27		17.2	99.5	█			@ 15 feet, slight increase in calcification, gray-white, remains porous, moist.
20	27		17.1	101.3	█			
25	62		9.8	122.0	█	▨	CL	@ 25 feet, <u>LEAN CLAY</u> with SAND, approximately 5% coarse grained sand, 5% medium grained sand, 10% fine grained sand, 80% clayey fines of low plasticity, red-brown, damp to moist, trace pinhole porosity, trace thin calcite stringers, slightly indurated.
30								END OF BORING @ 26.5' Fill to 2' No groundwater No bedrock

Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

PROJECT: Proposed Gas Station Canopy & Restaurant	PROJECT NUMBER: 12765.11
CLIENT: Parmjit Singh	ELEVATION:
LOR GEOTECHNICAL GROUP INC.	DATE DRILLED: October 26, 2018
	EQUIPMENT: Mobile B-61
	HOLE DIA.: 8" ENCLOSURE: B-3

APPENDIX C

Laboratory Testing Program and Test Results

APPENDIX C LABORATORY TESTING

General

Selected soil samples obtained from the borings were tested in our geotechnical laboratory to evaluate the physical properties of the soils affecting foundation design and construction procedures. The laboratory testing program performed in conjunction with our investigation included moisture content, dry density, laboratory compaction, consolidation, direct shear, sieve analysis, sand equivalent, R-value, expansion index, Atterberg limits, and soluble sulfate content. Descriptions of the laboratory tests are presented in the following paragraphs:

Moisture Density Tests

The moisture content and dry density information provides an indirect measure of soil consistency for each stratum, and can also provide a correlation between soils on this site. The dry unit weight and field moisture content were determined for selected undisturbed samples, in accordance with ASTM D 2921 and ASTM D 2216, respectively, and the results are shown on the boring logs, Enclosures B-1 through B-3, for convenient correlation with the soil profile.

Laboratory Compaction

Selected soil samples were tested in the laboratory to determine compaction characteristics using the ASTM D 1557 compaction test method. The results are presented in the following table:

LABORATORY COMPACTION				
Boring Number	Sample Depth (feet)	Soil Description U.S.C.S.	Maximum Dry Density (pcf)	Optimum Moisture Content (percent)
B-1	1-3	(CL) Lean Clay with Sand	126.5	10.5

Consolidation Tests

The apparatus used for the consolidation tests (odometer) is designed to test a one-inch high portion of the undisturbed soil sample as contained in a sample ring. Porous stones and filler paper are placed in contact with the top and bottom of the specimen to permit the addition or release of water. Loads are applied to the test specimen in specified increments, and the resulting axial deformations are recorded. The results are plotted as log of axial pressure versus consolidation or compression, expressed as strain or sample height.

Samples are tested at field and greater-than field moisture contents. The results are shown on Enclosures C-1 through C-4.

Direct Shear Tests

Shear tests are performed in general accordance with ASTM D 3080 with a direct shear machine at a constant rate-of-strain (0.04 inches/minute). The machine is designed to test a sample partially extruded from a sample ring in single shear. Samples are tested at varying normal loads in order to evaluate the shear strength parameters, angle of internal friction and cohesion. Samples are tested in remolded condition (90 percent relative compaction per ASTM D 1557) and soaked, to represent the worse case conditions expected in the field.

The results of the shear tests are presented in the following table:

DIRECT SHEAR TESTS				
Boring Number	Sample Depth (feet)	Soil Description U.S.C.S.	Angle of Internal Friction (degrees)	Apparent Cohesion (psf)
B-1	1-3	(CL) Lean Clay with Sand	27	250

Sieve Analysis

A quantitative determination of the grain size distribution was performed for selected samples in accordance with the ASTM D 422 laboratory test procedure. The determination is performed by passing the soil through a series of sieves, and recording the weights of retained particles on each screen. The results of the sieve analyses are presented graphically on Enclosure C-5.

Sand Equivalent

The sand equivalent of selected soils were evaluated using the California Sand Equivalent Test Method, Caltrans Number 217. The results of the sand equivalent tests are presented with the grain size distribution analyses on Enclosure C-5.

R-Value Test

Soil samples were obtained at probable pavement subgrade level and sieve analysis and sand equivalent tests were conducted. Based on these indicator tests, a selected soil sample was tested to determine its R-value using the California R-Value Test Method, Caltrans Number 301. The results of the sieve analysis, sand equivalent, and R-value tests are presented on Enclosure C-5.

Expansion Index Tests

Remolded samples are tested to determine their expansion potential in accordance with the Expansion Index (EI) test. The test is performed in accordance with the Uniform Building Code Standard 18-2. The test results are presented in the following table:

EXPANSION INDEX TESTS				
Boring Number	Sample Depth (feet)	Soil Description U.S.C.S.	Expansion Index (EI)	Expansion Potential
B-1	1-3	(CL) Lean Clay with Sand	Low	34
Expansion Index: 0-20 21-50 51-90 91-130				
Expansion Potential: Very low Low Medium High				

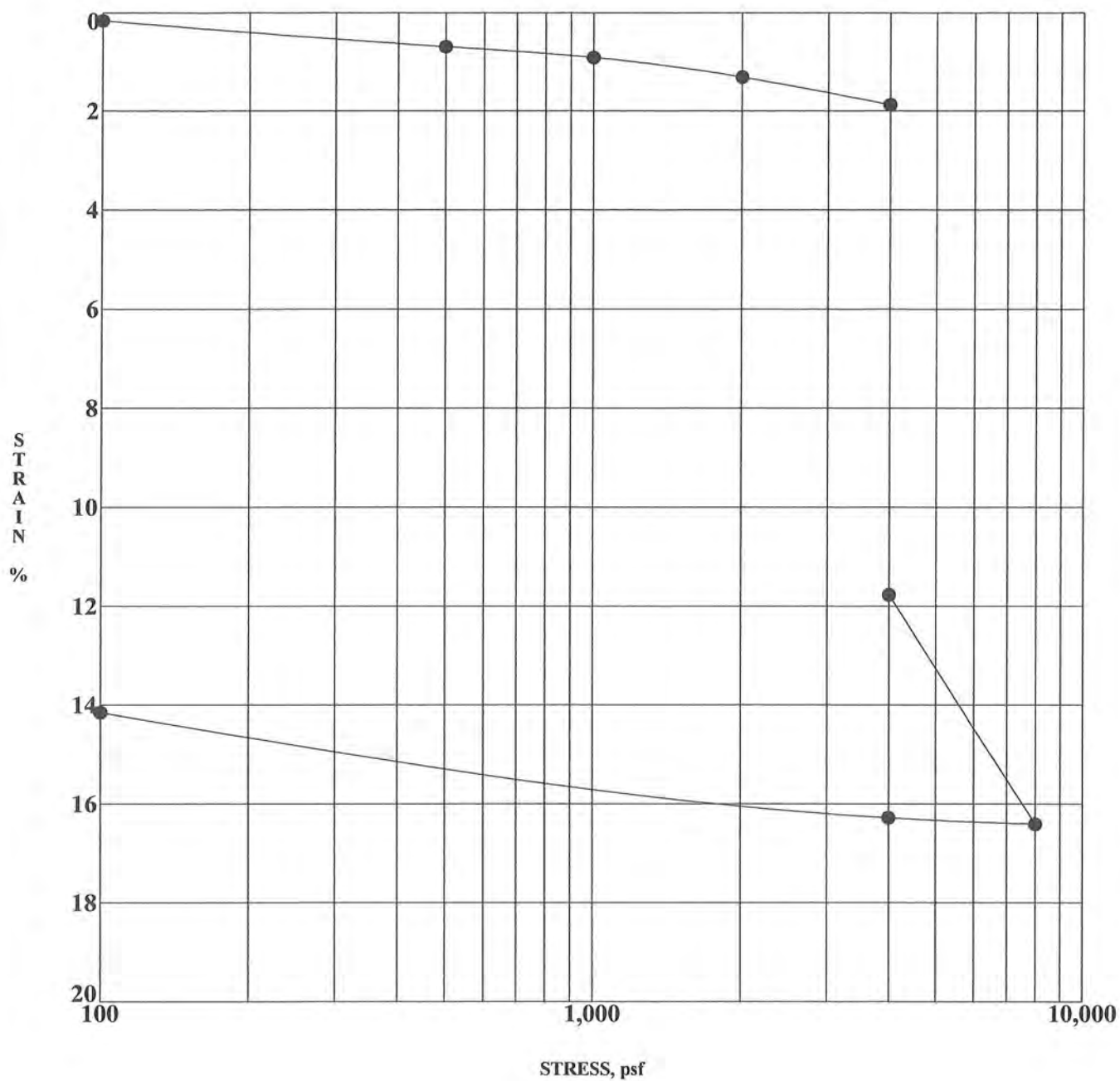
Atterberg Limits

Selected samples of the son-site fine grained soils were tested for their Atterberg limits in accordance with ASTM D 4318. The results of these tests are presented on Enclosure C-6.

Soluble Sulfate Content Tests

The soluble sulfate content of selected subgrade soils were evaluated. The concentration of soluble sulfates in the soils was determined by measuring the optical density of a barium sulfate precipitate. The precipitate results from a reaction of barium chloride with water extractions from the soil samples. The measured optical density is correlated with readings on precipitates of known sulfate concentrations. The test results are presented on the following table:

SOLUBLE SULFATE CONTENT TESTS			
Boring Number	Sample Depth (feet)	Soil Description U.S.C.S.	Sulfate Content (percent by weight)
B-1	1-3	(CL) Lean Clay with Sand	<0.005



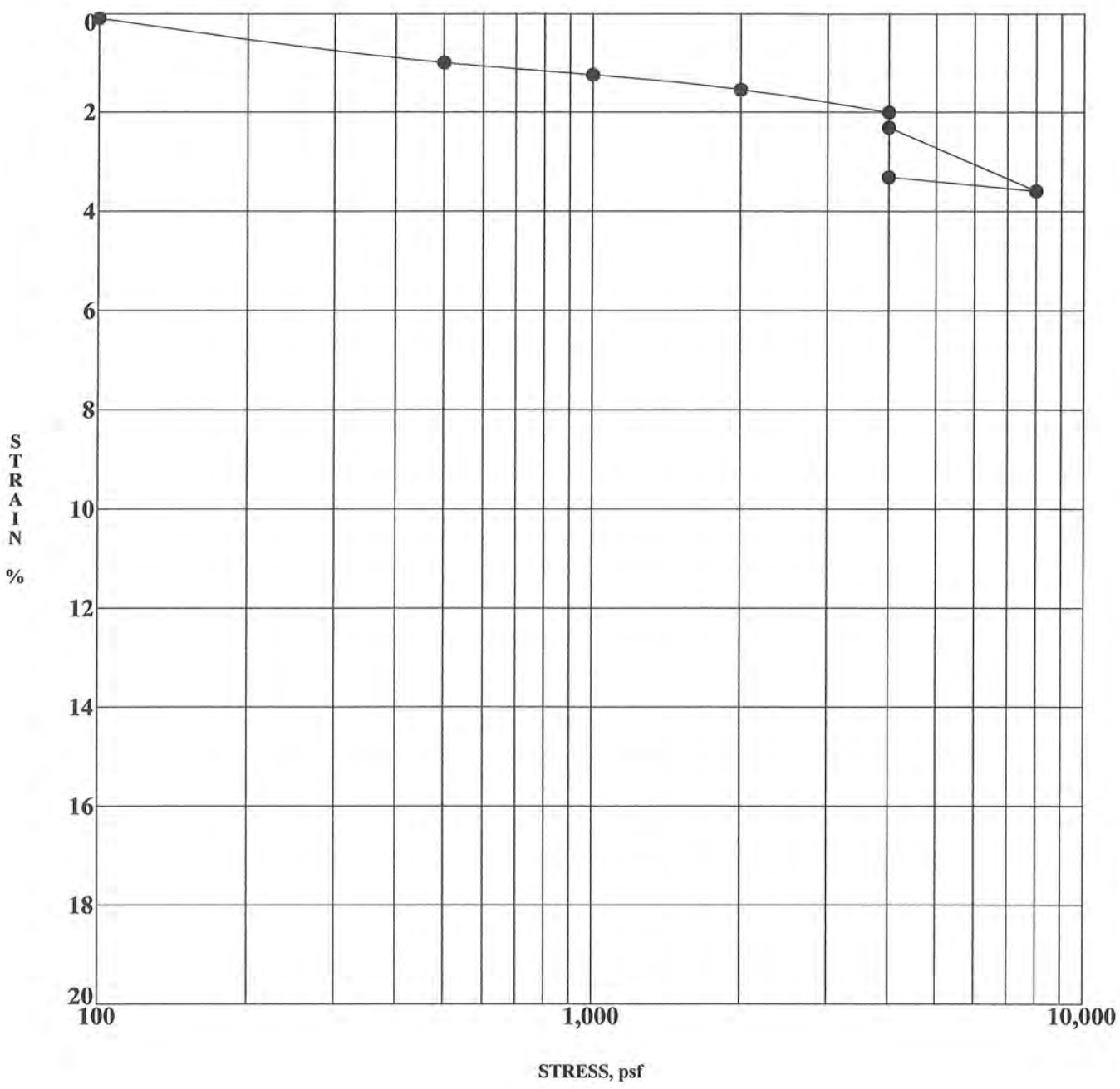
Specimen Identification	Classification	DD	MC%
● B-1 5.0	(ML) Sandy Silt	94	4

PROJECT Proposed Gas Station Canopy & Restaurant, Existing Farm Market PROJECT NO. 12765.11
 DATE 11/16/18

CONSOLIDATION TEST
 LOR Geotechnical Group, Inc.

ENCLOSURE C-1

Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)



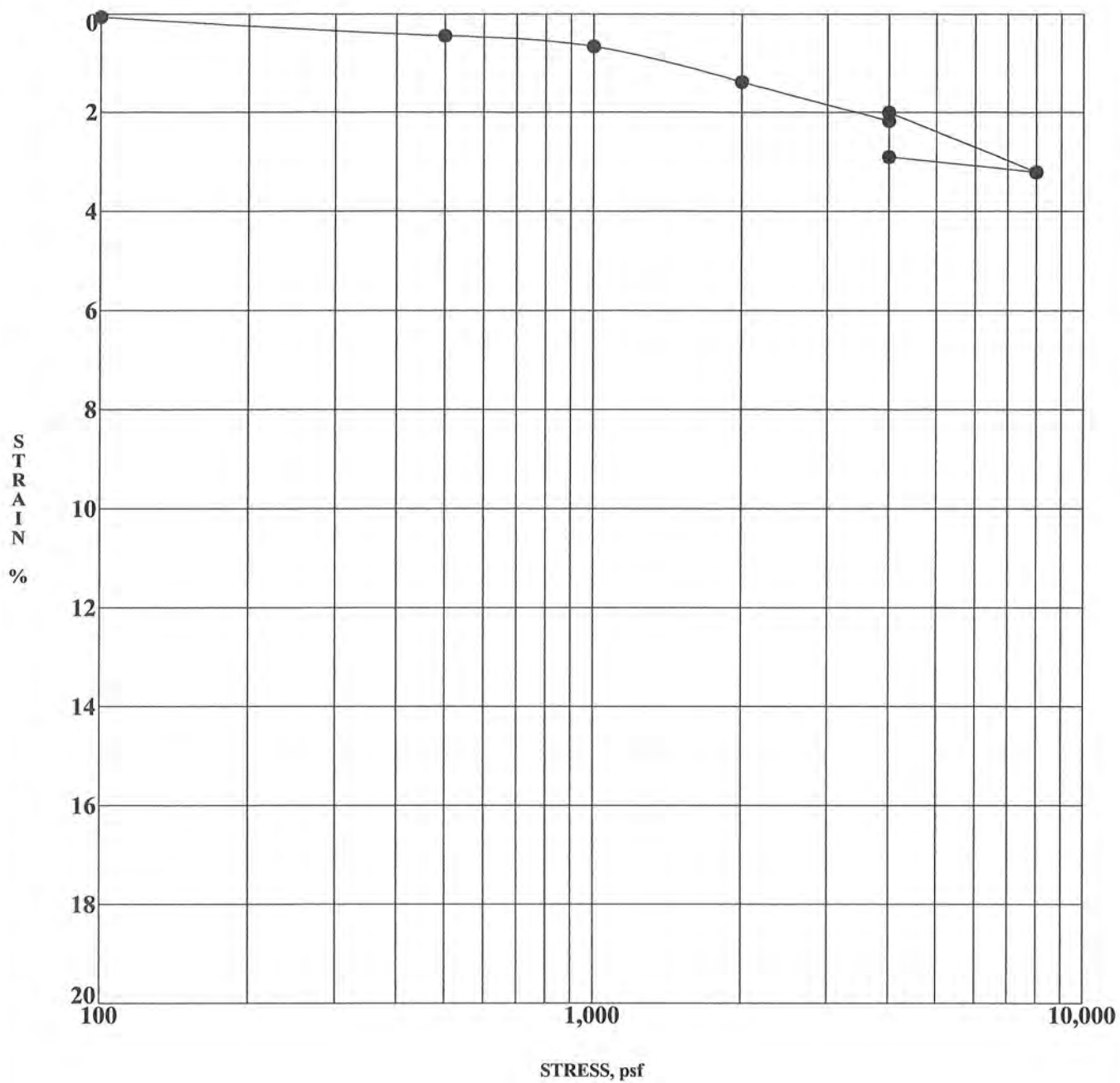
Specimen Identification		Classification	DD	MC%
●	B-1 10.0	(ML) Sandy Silt	107	9

PROJECT Proposed Gas Station Canopy & Restaurant, Existing Farm Market PROJECT NO. 12765.11
 DATE 11/16/18

CONSOLIDATION TEST
 LOR Geotechnical Group, Inc.

ENCLOSURE C-2

Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)



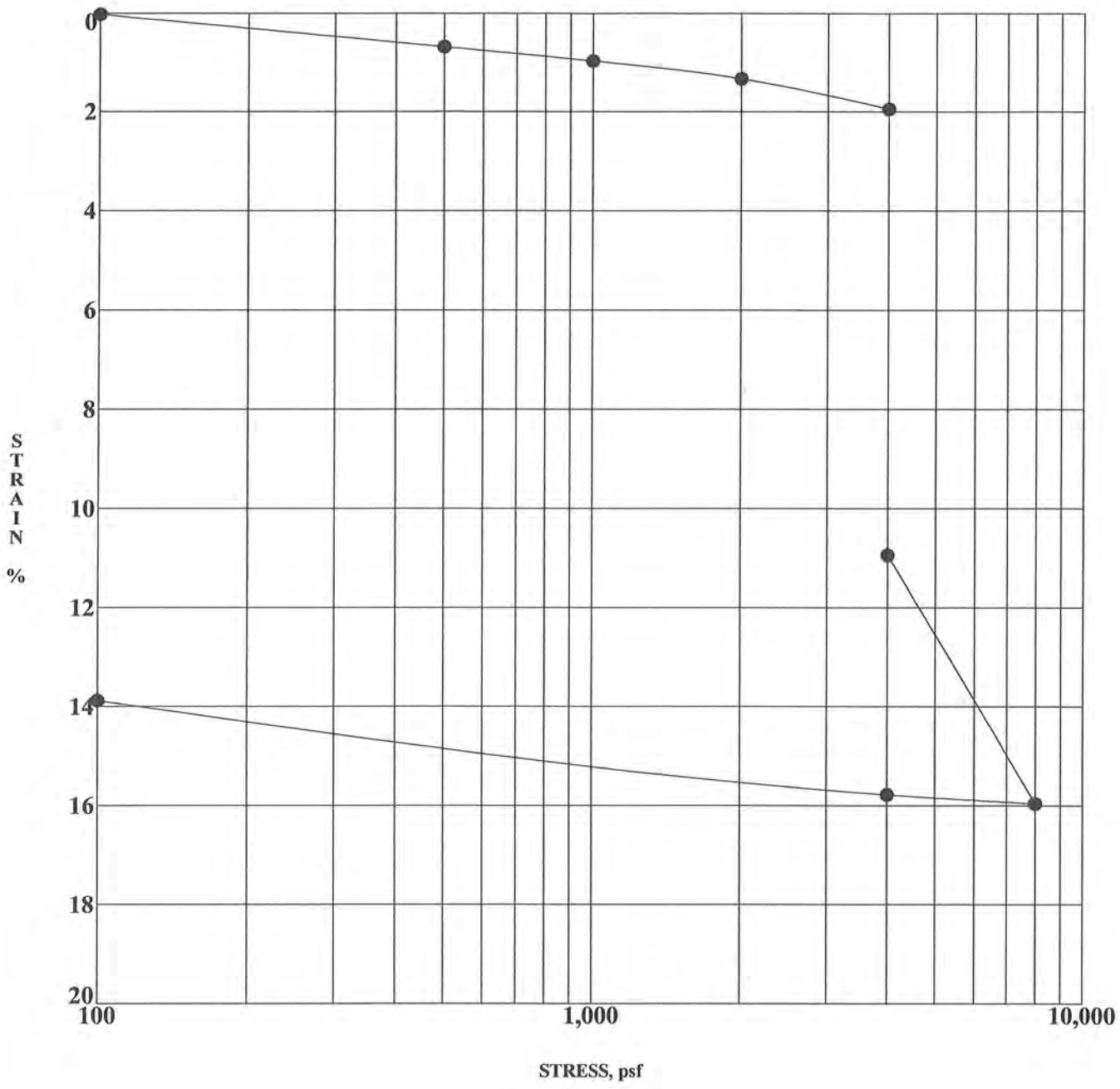
Specimen Identification			Classification	DD	MC%
●	B-1	15.0	(ML) Sandy Silt	102	8

PROJECT Proposed Gas Station Canopy & Restaurant, Existing Farm Market PROJECT NO. 12765.11
 DATE 11/16/18

CONSOLIDATION TEST
 LOR Geotechnical Group, Inc.

ENCLOSURE C-3

Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)



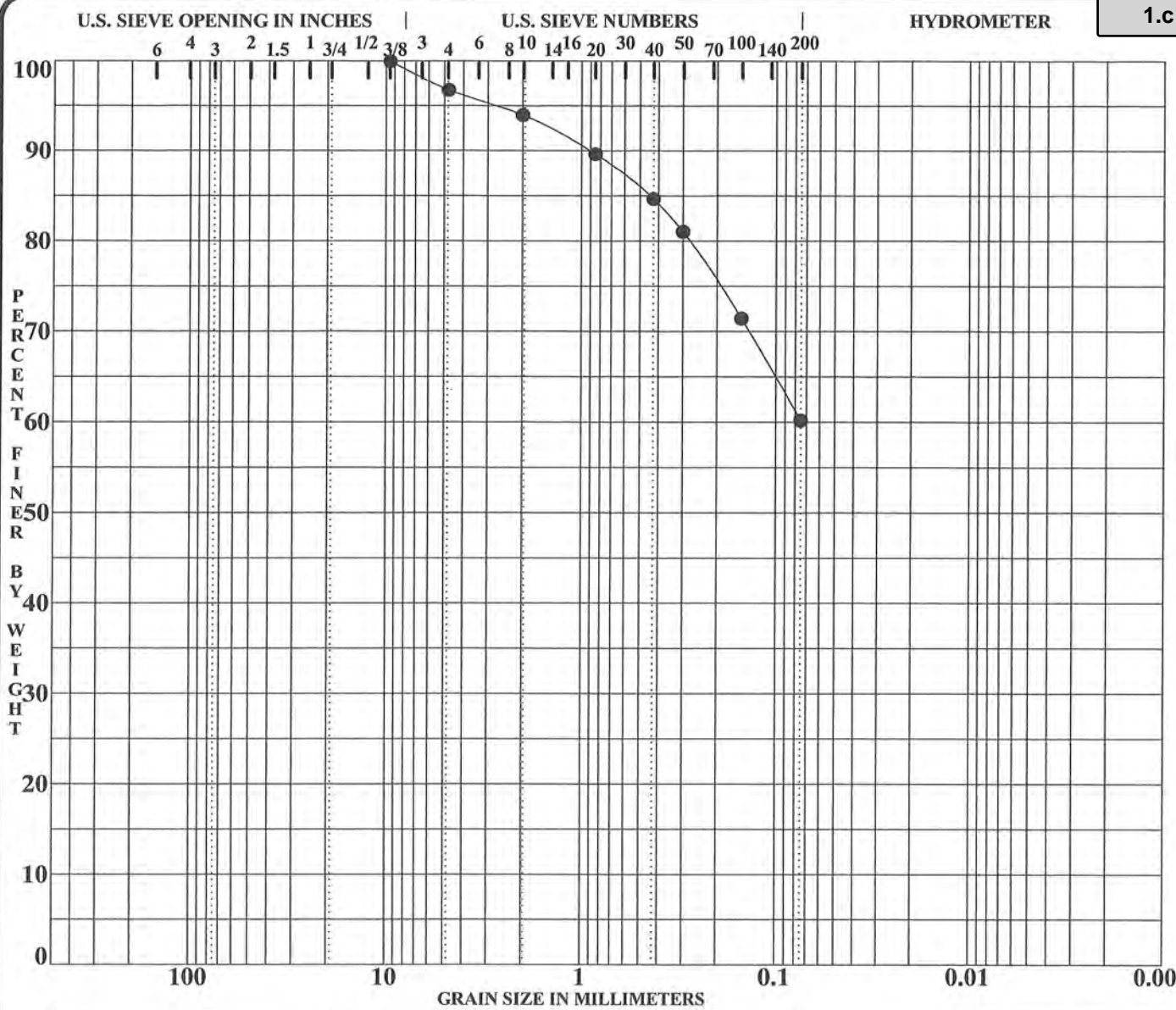
Specimen Identification	Classification	DD	MC%
● B-2 7.0	(ML) Sandy Silt	91	8

PROJECT Proposed Gas Station Canopy & Restaurant, Existing Farm Market PROJECT NO. 12765.11
 DATE 11/16/18

CONSOLIDATION TEST
 LOR Geotechnical Group, Inc.

ENCLOSURE C-4

Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification	Soil Classification	SE	RV	PL	PI	Cc	Cu
● RV-1 @ 0-3 ft	(ML) Sandy Silt	8	19				

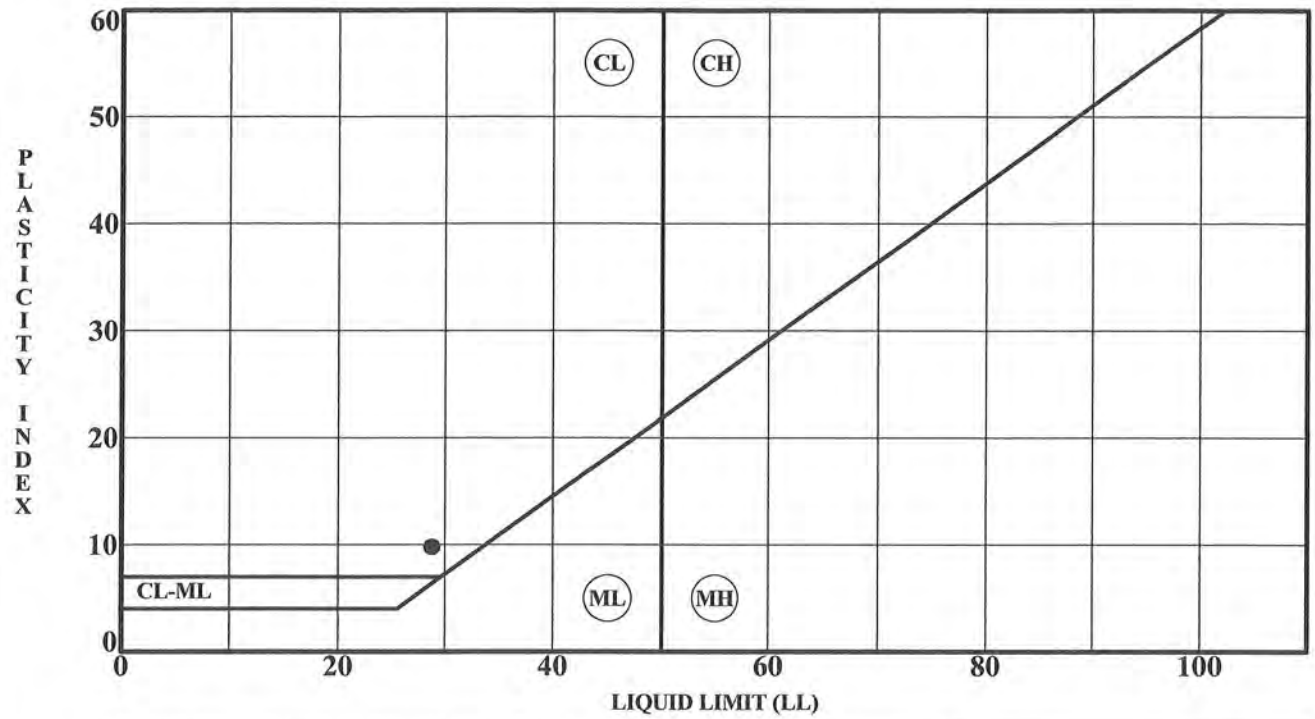
Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● RV-1 @ 0-3 ft	9.50				3.2	36.6	60.2	

PROJECT *Proposed Gas Station Canopy & Restaurant, Existing Farm Market* PROJECT NO. 12765.11
 DATE 11/16/18

GRADATION CURVES
 LOR Geotechnical Group, Inc.

ENCLOSURE C-5

Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)



Specimen Identification	LL	PL	PI	Fines	Soil Classification
● B-1 @ 1 - 3 ft	29	19	10		(CL) Lean Clay with Sand

PROJECT Proposed Gas Station Canopy & Restaurant PROJECT NO. 12765.11
 DATE 11/20/18

ATTERBERG LIMITS' RESULTS
 LOR Geotechnical Group, Inc.

ENCLOSURE C-6

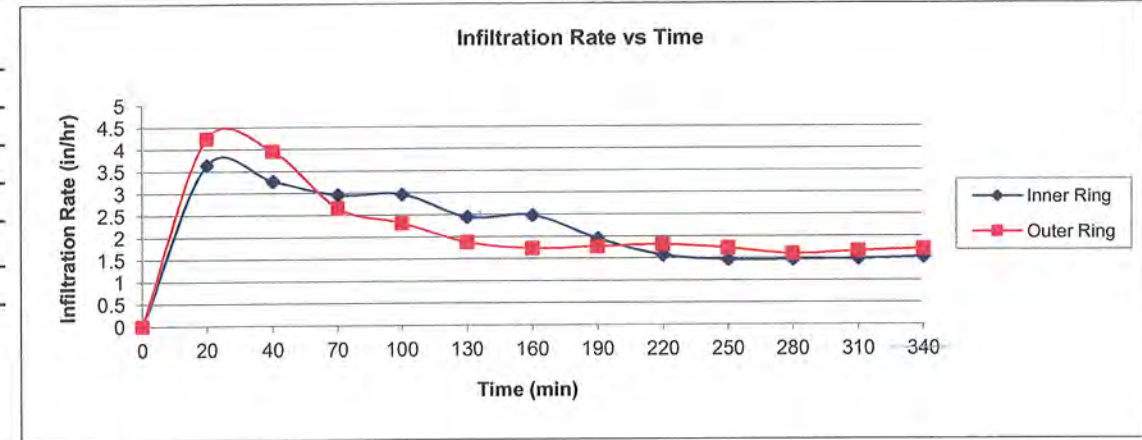
Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

APPENDIX D
Infiltration Test Results

Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

DOUBLE RING INFILTROMETER TEST DATA

Project:	Proposed Gas Station and Restaurant	Test Date:	October 29, 2018
Project No.:	12765.11	Test Hole No.:	DRI-1
Soil Classification:	(ML) Sandy Silt	Test Hole Diameter:	12 in. inner, 24 in. annular
Depth of Test Hole:	4 ft.	Date Excavated:	October 29, 2018
Liquid Used:	Tap Water	pH:	7.8
Area of Rings:	Inner = 0.785 ft ² , Annular 2.36 ft ²	Depth of Water in Rings:	3.5 in
Tested By:	A.L.	Ring Penetration:	3.5 in
Liquid Level Maintained Using:	Vacuum Seal		
Depth to Water Table:	100 ft		



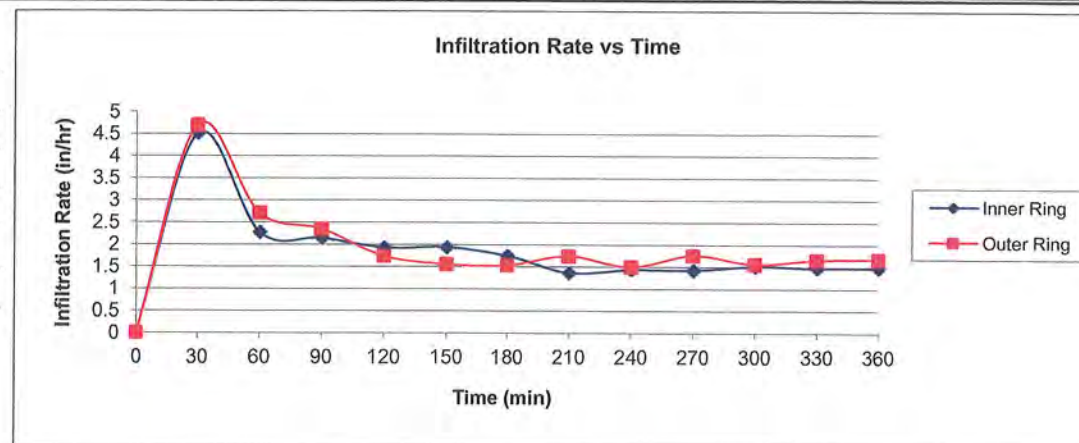
TEST PERIOD																
TRIAL NO.	INNER			ANNULAR SPACE			WATER USED (lbs.)		WATER USED (gal)		INFILTRATION RATE (gal/sf.day)		INFILTRATION RATE (in/hr)		LIQUID TEMP (°F)	REMARKS
	TIME	TIME INTERVAL (minutes)	TOTAL ELAPSED TIME (minutes)	TIME	TIME INTERVAL (minutes)	TOTAL ELAPSED TIME (minutes)	inner	annular space	inner	annular space	inner	annular space	inner	annular space		
1	S	8:40	20	20	8:40	20	4.94	17.28	0.593	2.074	54.4	63.3	3.6	4.2	64	
	E	9:00			9:00										65	
2	S	9:00	20	40	9:00	20	4.44	16.11	0.533	1.934	48.9	59.0	3.3	4.0	66	
	E	9:20			9:20										66	
3	S	9:22	30	70	9:22	30	6.01	16.24	0.721	1.950	44.1	39.7	3.0	2.7	67	refilled outer
	E	9:52			9:52										67	
4	S	9:52	30	100	9:52	30	6.03	14.14	0.724	1.697	44.3	34.5	3.0	2.3	68	
	E	10:22			10:22										68	
5	S	10:26	30	130	10:26	30	4.97	11.48	0.597	1.378	36.5	28.0	2.4	1.9	69	refilled outer
	E	10:56			10:56										69	
6	S	10:56	30	160	10:56	30	5.04	10.58	0.605	1.270	37.0	25.8	2.5	1.7	71	
	E	11:26			11:26										72	
7	S	11:26	30	190	11:26	30	3.96	10.81	0.475	1.298	29.1	26.4	1.9	1.8	73	
	E	11:56			11:56										74	
8	S	12:00	30	220	12:00	30	3.19	11.08	0.383	1.330	23.4	27.1	1.6	1.8	75	refilled outer
	E	12:30			12:30										75	
9	S	12:30	30	250	12:30	30	2.98	10.57	0.358	1.269	21.9	25.8	1.5	1.7	76	
	E	13:00			13:00										76	
10	S	13:00	30	280	13:00	30	2.99	9.77	0.359	1.173	21.9	23.9	1.5	1.6	77	
	E	13:30			13:30										77	
11	S	13:30	30	310	13:30	30	3.03	10.13	0.364	1.216	22.2	24.7	1.5	1.7	78	
	E	14:00			14:00										78	
12	S	14:00	30	340	14:00	30	3.09	10.43	0.371	1.252	22.7	25.5	1.5	1.7	78	
	E	14:30			14:30										78	

Enclosure D-1

Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

DOUBLE RING INFILTROMETER TEST DATA

Project:	Proposed Gas Station and Restaurant	Test Date:	October 29, 2018
Project No.:	12765.11	Test Hole No.:	DRI-2
Soil Classification:	(ML) Sandy Silt	Test Hole Diameter:	12 in. inner, 24 in. annular
Depth of Test Hole:	4 ft	Date Excavated:	October 29, 2018
Liquid Used:	Tap Water	pH:	7.8
Area of Rings:	Inner = 0.785 ft ² , Annular 2.36 ft ²	Depth of Water in Rings:	4 in
Tested By:	A.L.	Ring Penetration:	3.5 in
Liquid Level Maintained Using:	Vacuum Seal		
Depth to Water Table:	100 ft		



TEST PERIOD																
TRIAL NO.	INNER			ANNULAR SPACE			WATER USED (lbs.)		WATER USED (gal)		INFILTRATION RATE (gal/sf.day)		INFILTRATION RATE (in/hr)		LIQUID TEMP (°F)	REMARKS
	TIME	TIME INTERVAL (minutes)	TOTAL ELAPSED TIME (minutes)	TIME	TIME INTERVAL (minutes)	TOTAL ELAPSED TIME (minutes)	inner	annular space	inner	annular space	inner	annular space	inner	annular space		
1	S	8:58	30	8:58	30	30	9.18	28.71	1.102	3.447	67.4	70.1	4.5	4.7	65	
	E	9:28														
2	S	9:30	30	9:30	30	60	4.62	16.55	0.555	1.987	33.9	40.4	2.3	2.7	66	
	E	10:00														
3	S	10:00	30	10:00	30	90	4.36	14.34	0.523	1.721	32.0	35.0	2.1	2.3	67	refilled outer
	E	10:30														
4	S	10:34	30	10:34	30	120	3.92	10.61	0.471	1.274	28.8	25.9	1.9	1.7	68	
	E	11:04														
5	S	11:04	30	11:04	30	150	3.94	9.51	0.473	1.142	28.9	23.2	1.9	1.6	69	refilled outer
	E	11:34														
6	S	11:34	30	11:34	30	180	3.55	9.36	0.426	1.124	26.1	22.9	1.7	1.5	71	
	E	12:04														
7	S	12:08	30	12:08	30	210	2.77	10.62	0.333	1.275	20.3	25.9	1.4	1.7	73	refilled outer
	E	12:38														
8	S	12:38	30	12:38	30	240	2.92	9.15	0.351	1.098	21.4	22.3	1.4	1.5	75	
	E	13:08														
9	S	13:08	30	13:08	30	270	2.90	10.73	0.348	1.288	21.3	26.2	1.4	1.8	76	
	E	13:38														
10	S	13:38	30	13:38	30	300	3.08	9.55	0.370	1.146	22.6	23.3	1.5	1.6	77	
	E	14:08														
11	S	14:10	30	14:10	30	330	3.01	10.14	0.361	1.217	22.1	24.8	1.5	1.7	78	refilled outer
	E	14:40														
12	S	14:40	30	14:40	30	360	3.02	10.22	0.363	1.227	22.2	25.0	1.5	1.7	79	
	E	15:10														

Attachment: Appendices A - E to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Appendix F - Hydrology Analysis and Water Quality Management Plan

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Preliminary Hydrology Study

14058 Redlands Blvd

Farm Market Expansion and Gas Station

Prepared for

Parmjit Singh



July 2020



PRELIMINARY HYDROLOGY ANALYSIS MORENO VALLEY FARM MARKET EXPANSION

FOR

PARMJIT SINGH
10458 REDLANDS BOULEVARD
MORENO VALLEY, CA. 92555

CITY OF MORENO VALLEY
COUNTY OF RIVERSIDE
CALIFORNIA

PREPARED BY:



22421 BARTON ROAD # 125
GRAND TERRACE, CA 92313
BRIAN LOWELL, PE, QSD, QSP



Brian R. Lowell, R.C.E. 74550

Date Prepared: July 2020

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

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SECTION 1 - Summary

Introduction

The purpose of this report is to present the backup hydrology that will be used for the planning phase of the Moreno Valley Farm Market Expansion and Gas Station project in the City of Moreno Valley. The proposed residential development is located in the eastern portion of the City of Moreno Valley, Riverside County, California on a 1.6 acre parcel owned by Mr. Parmjit Singh. The parcel is bounded by Alessandro Boulevard to the north, residential houses to the east, Kimberly Avenue to the south and Redlands Boulevard to the west.

Existing Conditions

The project site consists of vacant undeveloped land. This area is comprised of hydrologic soil type 'A', as is shown on the included soils map. A preliminary geotechnical investigation was prepared for the site by LOR Geotechnical Group, Inc, on November 21, 2018, which determined that there is hydro-collapsible alluvial soil present on-site. The project site is located within the Santa Jacinto Valley Sub-watershed (HCU8) portion of the Santa Ana River Watershed. The site is situated north of San Jacinto River approximately ten miles north of its confluence with Perris Valley Channel. The topography of the site is generally flat with elevations ranging from approximately 1,601 feet to 1,593 feet above mean sea level.

Proposed Drainage Facilities

This development proposes the addition of a four pump gas station and a single 3,850 square foot commercial building. The single building is intended to be sub-divided into one 1,500 square foot commercial suite and one 2,350 square foot restaurant. Approximately 8,400 s.f. of existing concrete parking lot and 9,750 sf of existing landscaping will be removed and reconfigured. Approximately 3,860 sf of landscaping, 6,480 sf of existing pavement and 6,100 sf of existing buildings will remain. The proposed project will have approximately 49,201 s.f. of impervious area and 20,682 s.f. of pervious landscaping. The existing site surface flows southwest onto Redlands Boulevard. All run-off from the portions of the site that are remaining undisturbed will follow the existing drainage path to the south west, and will be captured by a new grated inlet and direct this run-off underground easterly to a new underground storage vault where it will comingle with the proposed development run-off. New improvements will direct run-off via surface flow and underground drain lines south east to a proposed underground storage vault that is connected to a Modular Wetland System. The water quality volume will be captured, retained and metered out through the MWS where water quality objectives will be met. Ultimately, all flows will join the existing 54-inch MS4 storm drain system within Redlands Boulevard, where it will follow the natural drainage path of the San Jacinto River Basin to Lake Elsinore, which is classified as a regional sump.

Due to the presence of hydro-collapsible soils at the site and adjacent properties, infiltration of water into the upper approximately 10 to 12 feet is not recommended. While the remedial grading recommended within this report is anticipated to mitigate such soils within the proposed building areas of the site, the presence of hydro-collapsible soils on neighboring properties is most likely and the introduction of water into such soils could have an adverse effect on those developments. During the initial site preparation, all existing uncontrolled fills and loose, hydro-collapsible alluvial materials will be removed and recompacted. Removals are anticipated to be on the order of 10 to 12 feet will be required to encounter competent alluvium. After removal and recompaction, hydro collapsible soil condition will be remedied and no longer be a concern for on-site improvements. Additionally, any incidental water introduced to the sub-soil due to leakage from the storm trap system, will infiltrate into the native soil and not adversely affect the structural integrity of the soil on-site.

The proposed facilities are designed to convey the 100-year storm event, we have analyzed the site based on the existing and developed conditions for the 10-year, and 100-year storm events. RCFC&WCD rational and unit hydrograph methodologies were utilized to determine existing and developed flow rates. The results of this analysis are summarized in the following tables.

■ Drainage Management Area 'A'

The proposed development will increase the peak flow rate and volume of storm water run-off. In all of the storms modeled, the peak flow rate remained, for all intents and purposes, unchanged (+/- 0.4 cfs).

BASIN 'A' - UNIT HYDROGRAPH - PEAK FLOW RATE (cfs)				
	10 YEAR		100 YEAR	
	EXISTING	DEVELOPED	EXISTING	DEVELOPED
1 HOUR	3.2	3.6	5.4	5.8
3 HOUR	1.5	1.6	2.6	2.7
6 HOUR	1.4	1.6	2.4	2.5
24 HOUR	0.3	0.4	0.8	0.9

The largest storm volume increase was experienced during the 10 year 24 hour storm event, where the anticipated run-off is increased by 0.12 acre feet from the natural condition. This increase is being mitigated by the proposed underground storage vault located in the southeast corner of the site. Basin routing calculations will be provided during the final engineering.

BASIN 'A' - UNIT HYDROGRAPH – STORM VOLUME (ac-ft)				
	10 YEAR		100 YEAR	
	EXISTING	DEVELOPED	EXISTING	DEVELOPED
1 HOUR	0.07	0.09	0.14	0.15
3 HOUR	0.08	0.12	0.19	0.21
6 HOUR	0.11	0.17	0.23	0.27
24 HOUR	0.15	0.27	0.36	0.45

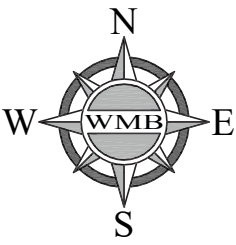
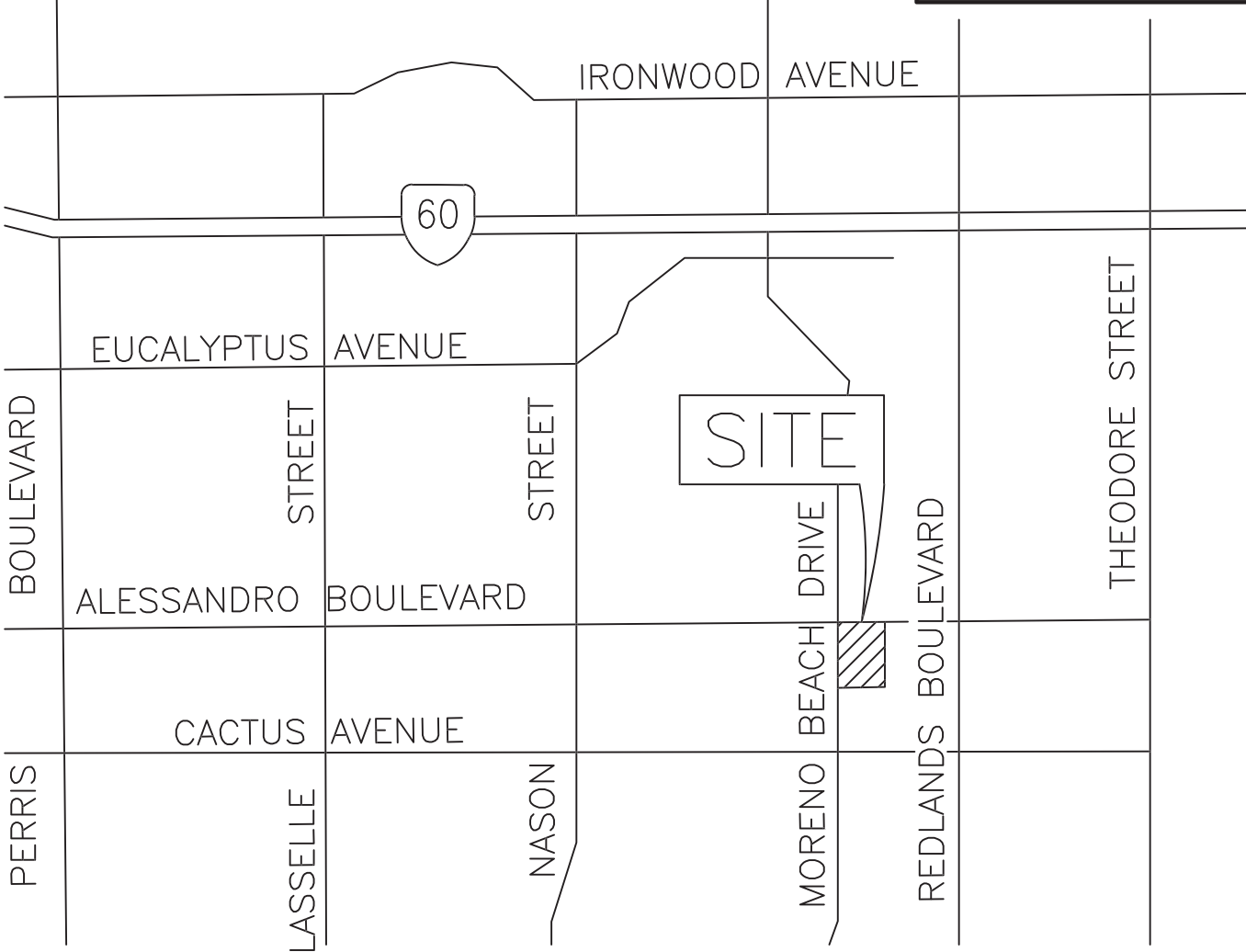
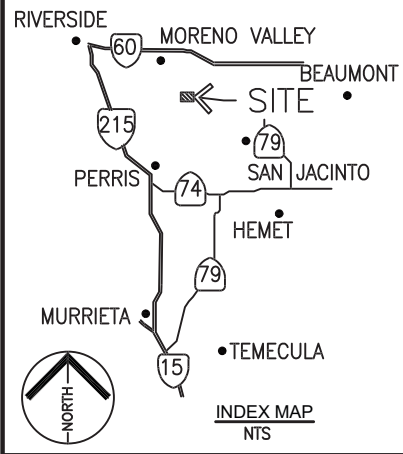
Methodology

This hydrology report is to be used only to analyze flow to, through, and out of the site using the Riverside County Rational Method. In regard to pipe sizing, the hydrology programs were utilized only as a tool for obtaining preliminary sizing of the storm drain facilities by allowing the program to determine minimum pipe sizes. The actual storm drain system and pipe sizes shall be designed per Riverside County Flood Control District criteria. Civil Design Version 7.0 Computer Software Program and AES Engineering Software 2011 version were used in generating the hydrological and hydraulic analysis for this report.

Conclusion

The development of this project does not propose a significant change over the existing conditions as illustrated in the previous tables. Peak flow rates however, did increase as would be expected with the addition of impervious area. This increase in flow rate and any increase in run-off volume will be mitigated by the proposed underground storage vault.

Based upon the results of this report, it is concluded that drainage facilities discussed above will adequately protect the site area from flood damage associated with the 100-year storm event. The proposed facilities, with ultimate development and adequate maintenance, will convey flows safely through the site area in accordance with Riverside County requirements.



NOT TO SCALE

FIGURE 1 VICINITY MAP

WMB & ASSOCIATES
 SURVEYING \ ENGINEERING \ PLANNING
 22421 BARTON ROAD #125
 GRAND TERRACE, CA 92313 (951)533-1871
 SURVEYING/ENGINEERING/PLANNING

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)



Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

WMB & ASSOCIATES
 SURVEYING \ ENGINEERING \ PLANNING
 22421 BARTON ROAD #125
 GRAND TERRACE, CA 92313 (951)533-1871
 SURVEYING/ENGINEERING/PLANNING

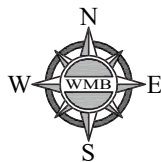
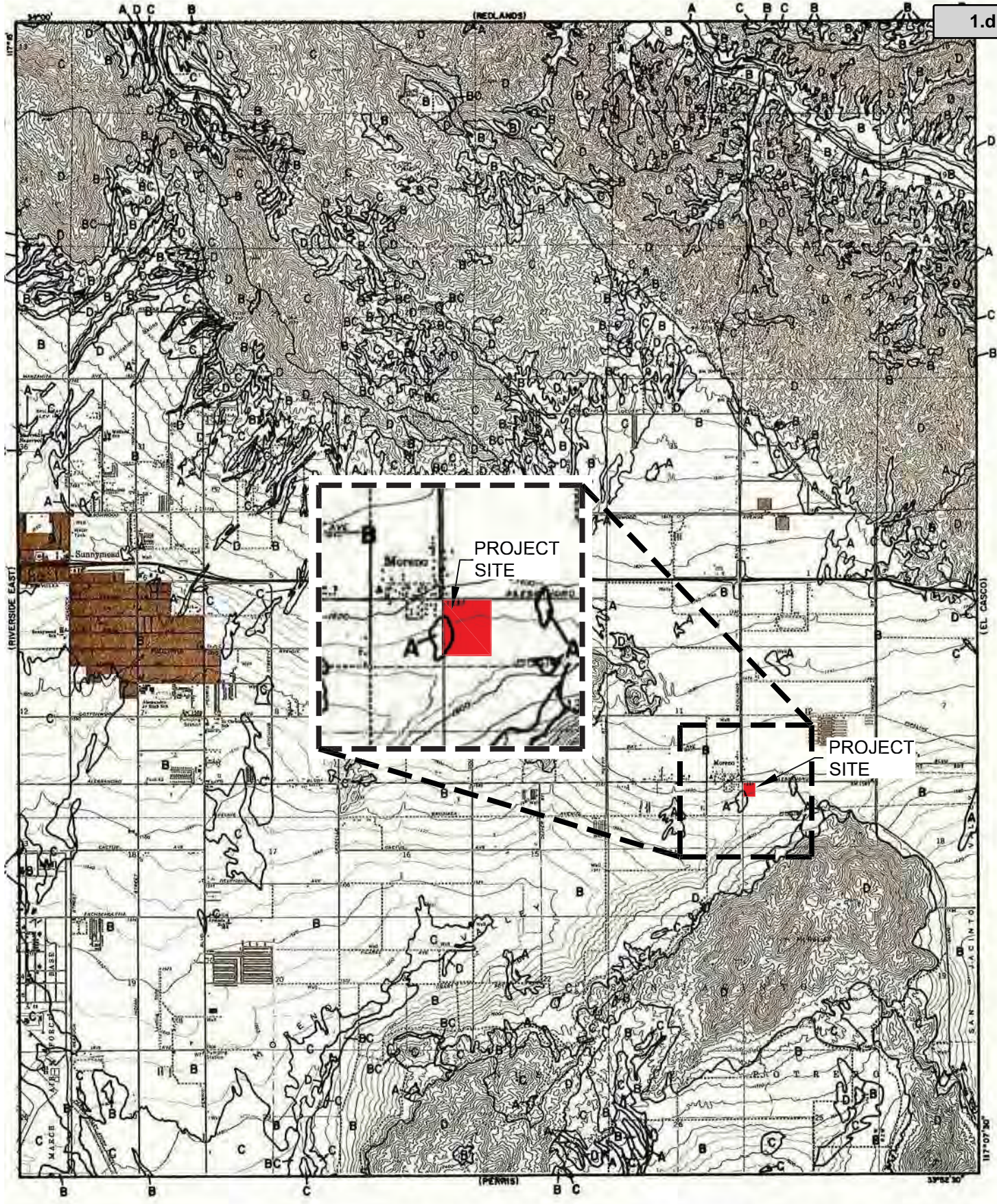


FIGURE 2 AERIAL PHOTOGRAPH

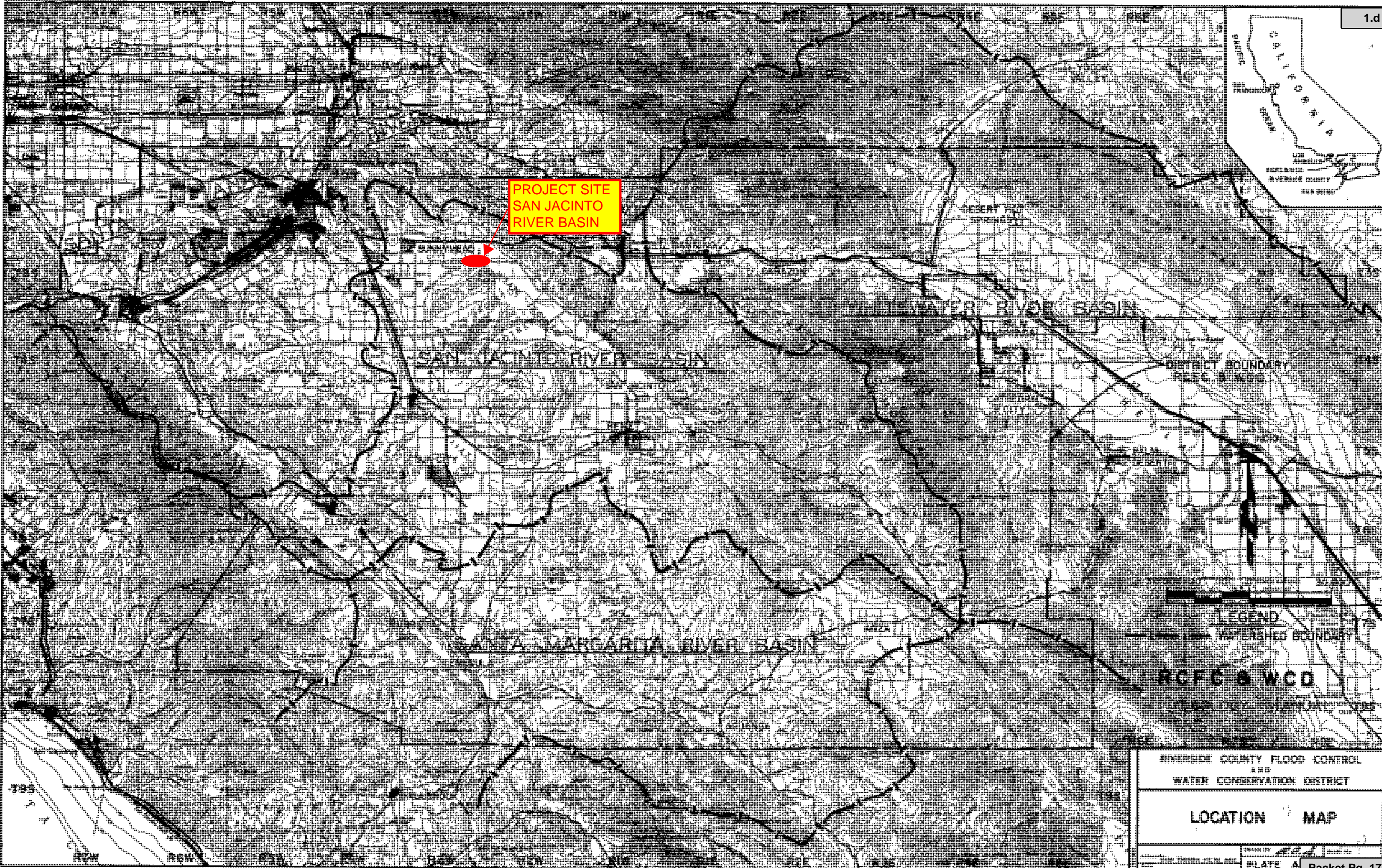
SECTION 2 - Riverside County Flood Control Data

- Soils Group Map
- Slope-Intensity Duration Curve
- Intensity Duration Curve

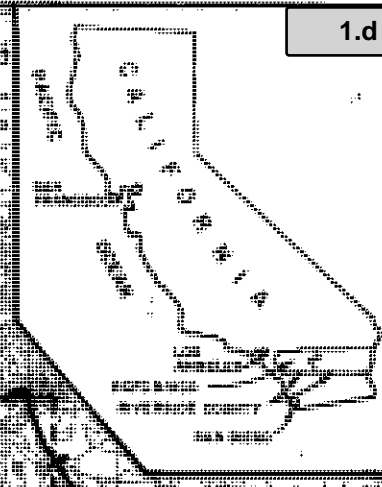


Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

<p>LEGEND</p> <p>— SOILS GROUP BOUNDARY</p> <p>A SOILS GROUP DESIGNATION</p> <p>RCFC & WCD</p> <p>HYDROLOGY MANUAL</p>	<p>0 FEET 5000</p>	<p>HYDROLOGIC SOILS GROUP MAP</p> <p>FOR</p> <p>SUNNYMEAD</p>
--	--------------------	--



**PROJECT SITE
SAN JACINTO
RIVER BASIN**



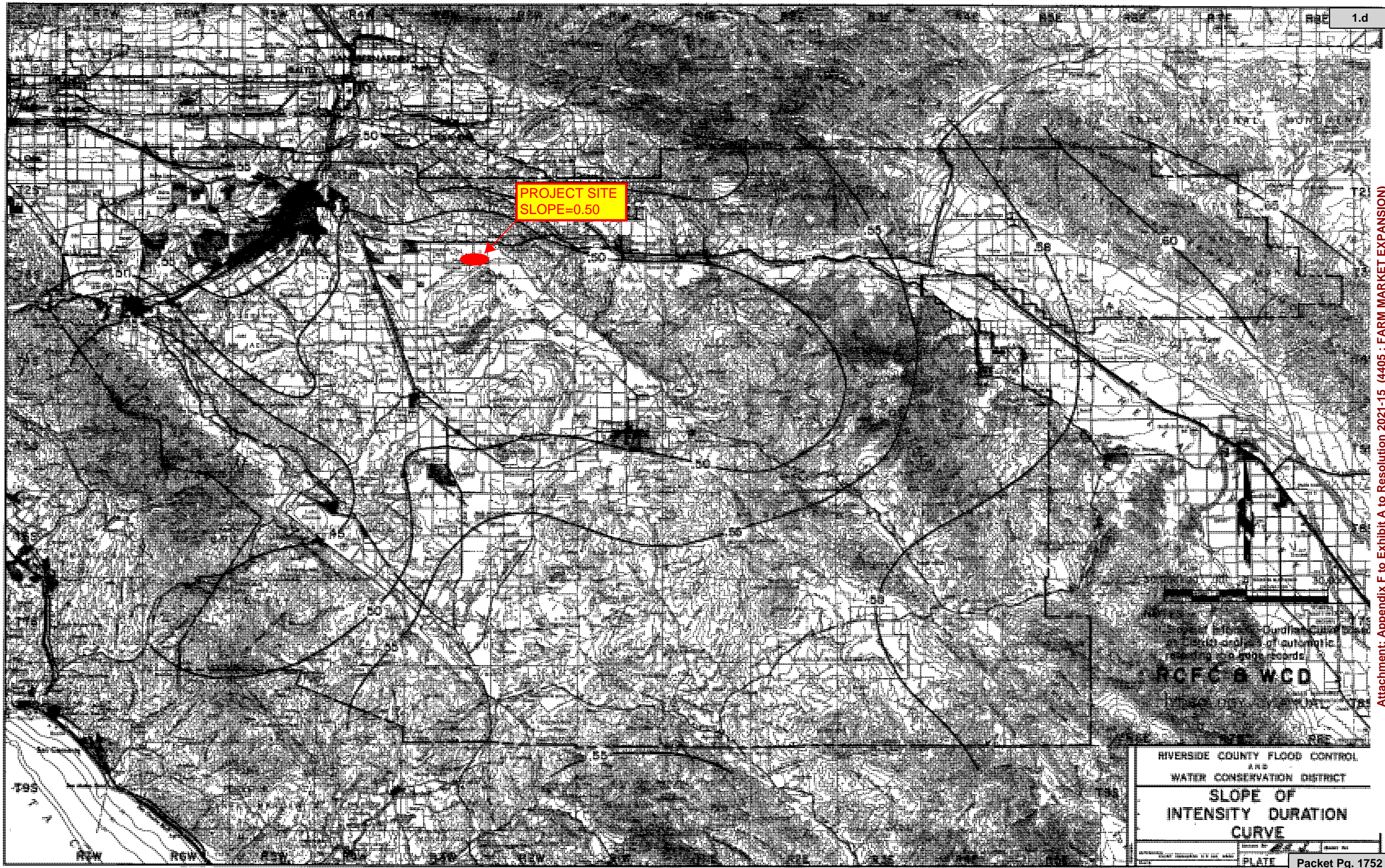
LEGEND
 DISTRICT BOUNDARY
 WATERSHED BOUNDARY

RCFC & WCD

RIVERSIDE COUNTY FLOOD CONTROL
 AND
 WATER CONSERVATION DISTRICT

LOCATION MAP

PLATE #



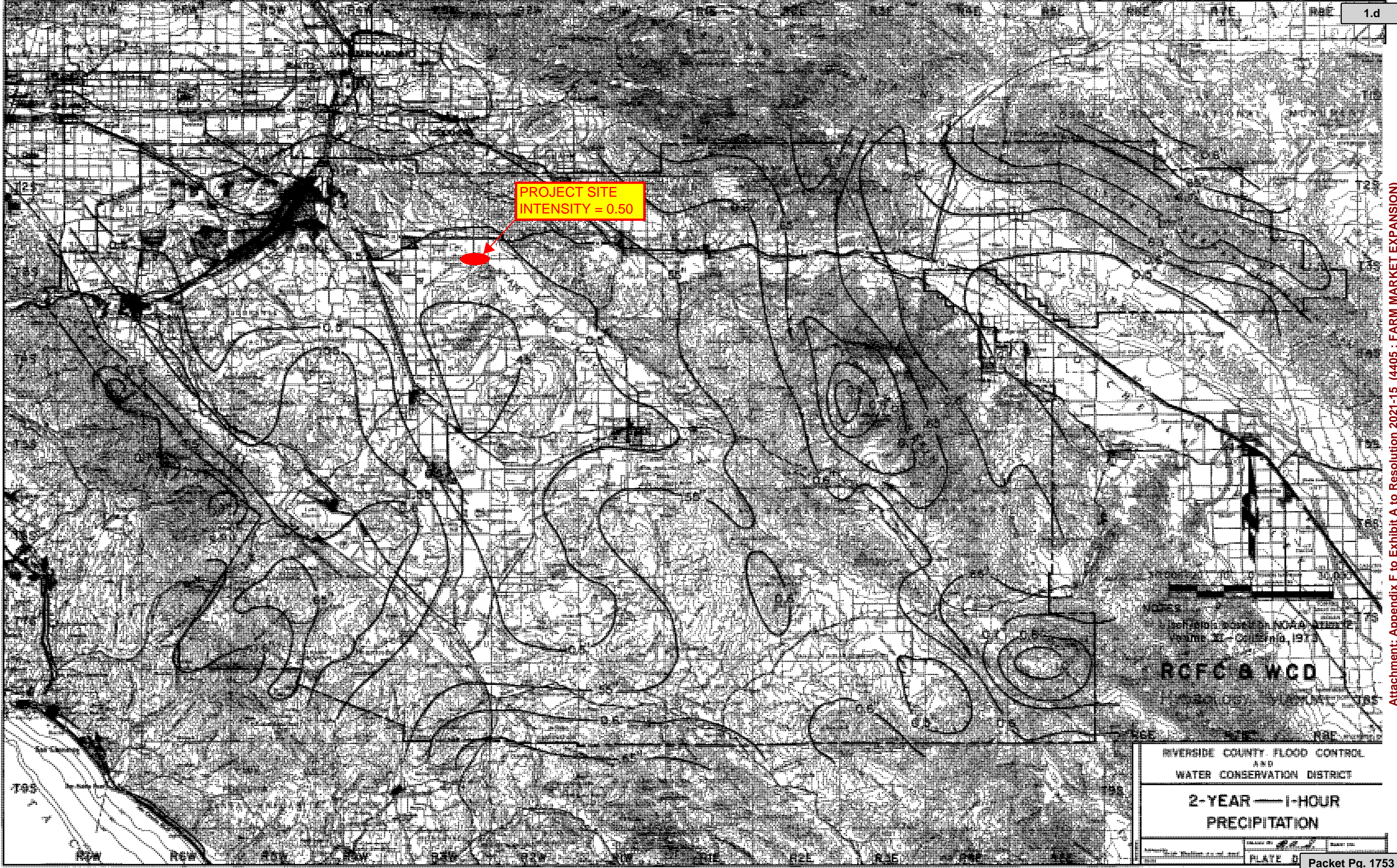
PROJECT SITE
SLOPE=0.50

Approved by the Board of Directors
of the Riverside County Flood Control
and Water Conservation District
on the 15th day of 1995
RCFC & WCD

RIVERSIDE COUNTY FLOOD CONTROL
AND
WATER CONSERVATION DISTRICT
**SLOPE OF
INTENSITY DURATION
CURVE**

DATE: 11/15/95
BY: [Signature]
SCALE: AS SHOWN
PLATE

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)



PROJECT SITE
INTENSITY = 0.50

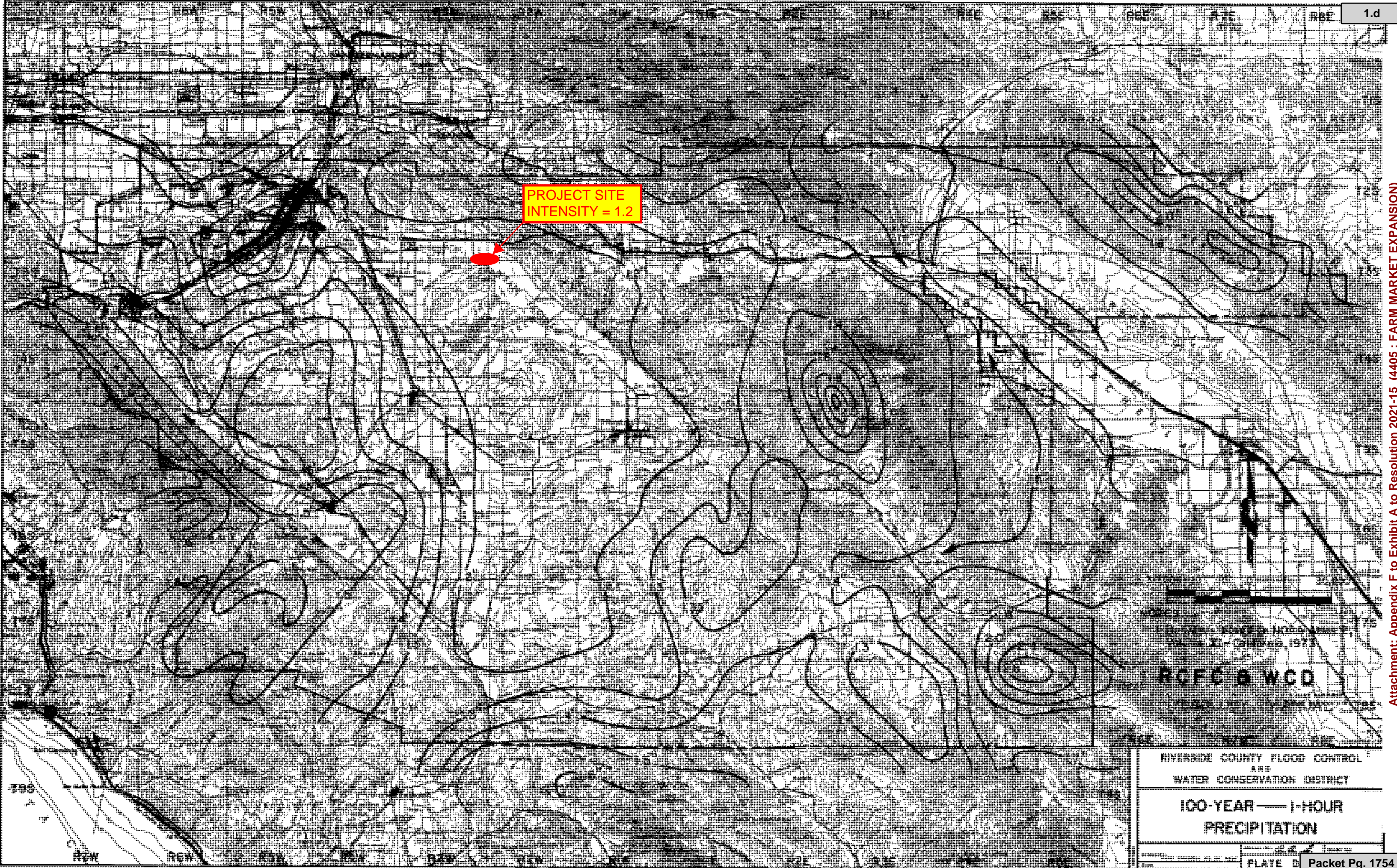
NOTES:
Elevation based on NGVD datum
Source: USGS, 1978

RCFC & WCD

RIVERSIDE COUNTY FLOOD CONTROL
AND
WATER CONSERVATION DISTRICT

2-YEAR — 1-HOUR
PRECIPITATION

PLATE D



PROJECT SITE
INTENSITY = 1.2

RCFC & WCD

RIVERSIDE COUNTY FLOOD CONTROL
AND
WATER CONSERVATION DISTRICT

100-YEAR — 1-HOUR
PRECIPITATION

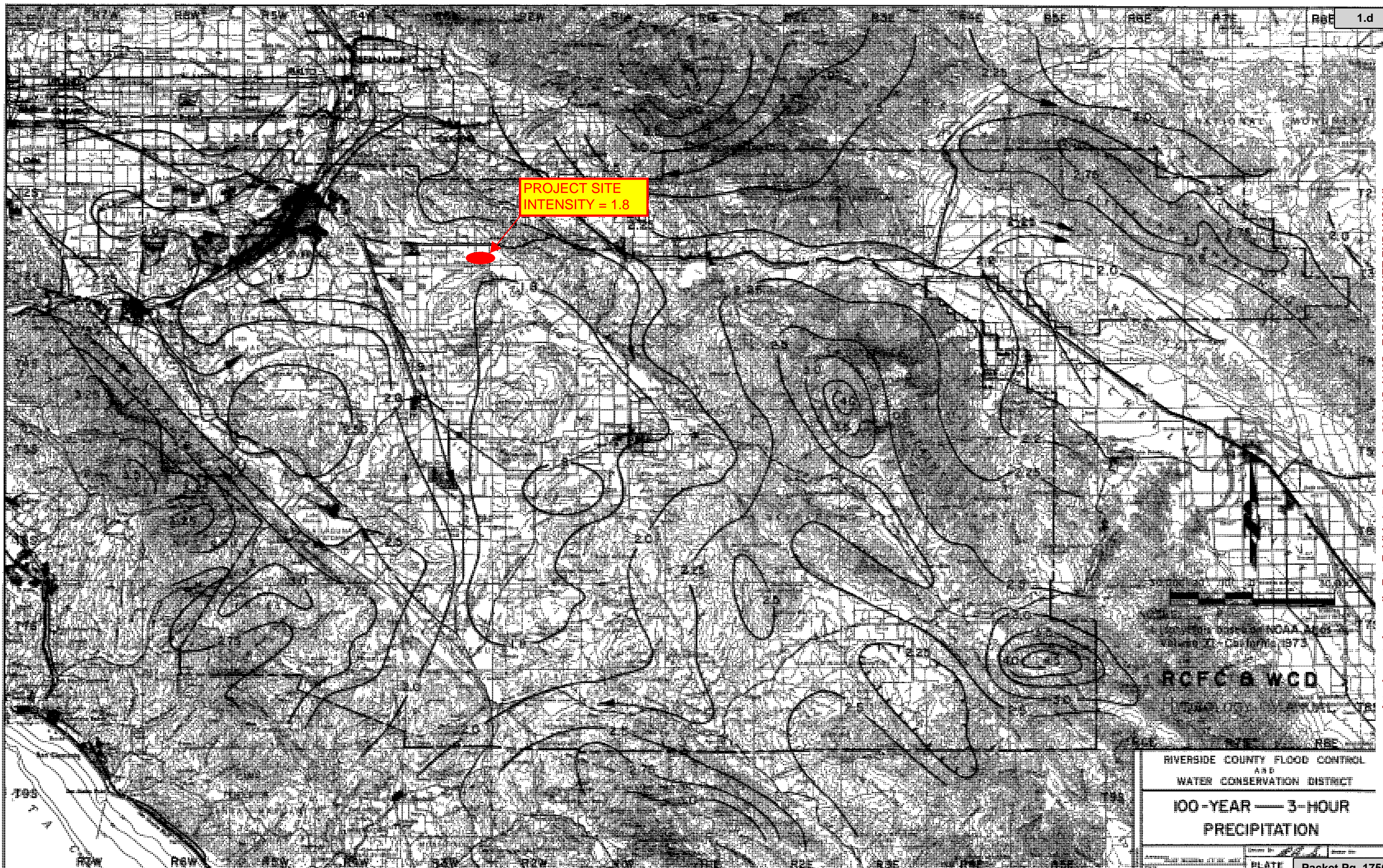
PROJECT SITE
INTENSITY = 0.8

RCFC & WCD

RIVERSIDE COUNTY FLOOD CONTROL
AND
WATER CONSERVATION DISTRICT

2-YEAR — 3-HOUR
PRECIPITATION

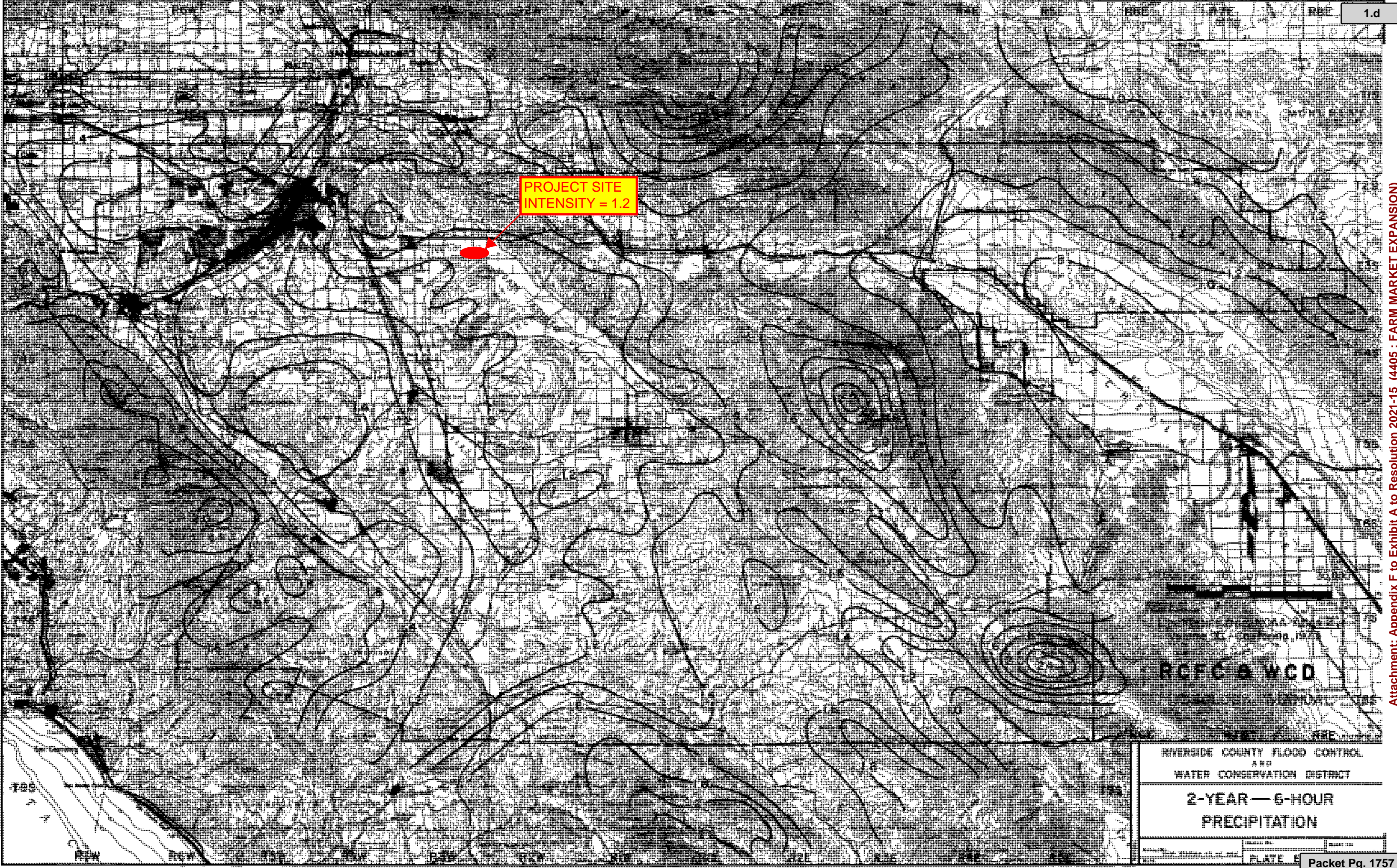
PLATE



PROJECT SITE
INTENSITY = 1.8

NOAA
NATIONAL CENTER FOR
HYDROLOGIC DATA
Riverside County Flood Control
and Water Conservation District
RCFC & WCD

RIVERSIDE COUNTY FLOOD CONTROL
AND
WATER CONSERVATION DISTRICT
100-YEAR — 3-HOUR
PRECIPITATION



PROJECT SITE
INTENSITY = 1.2

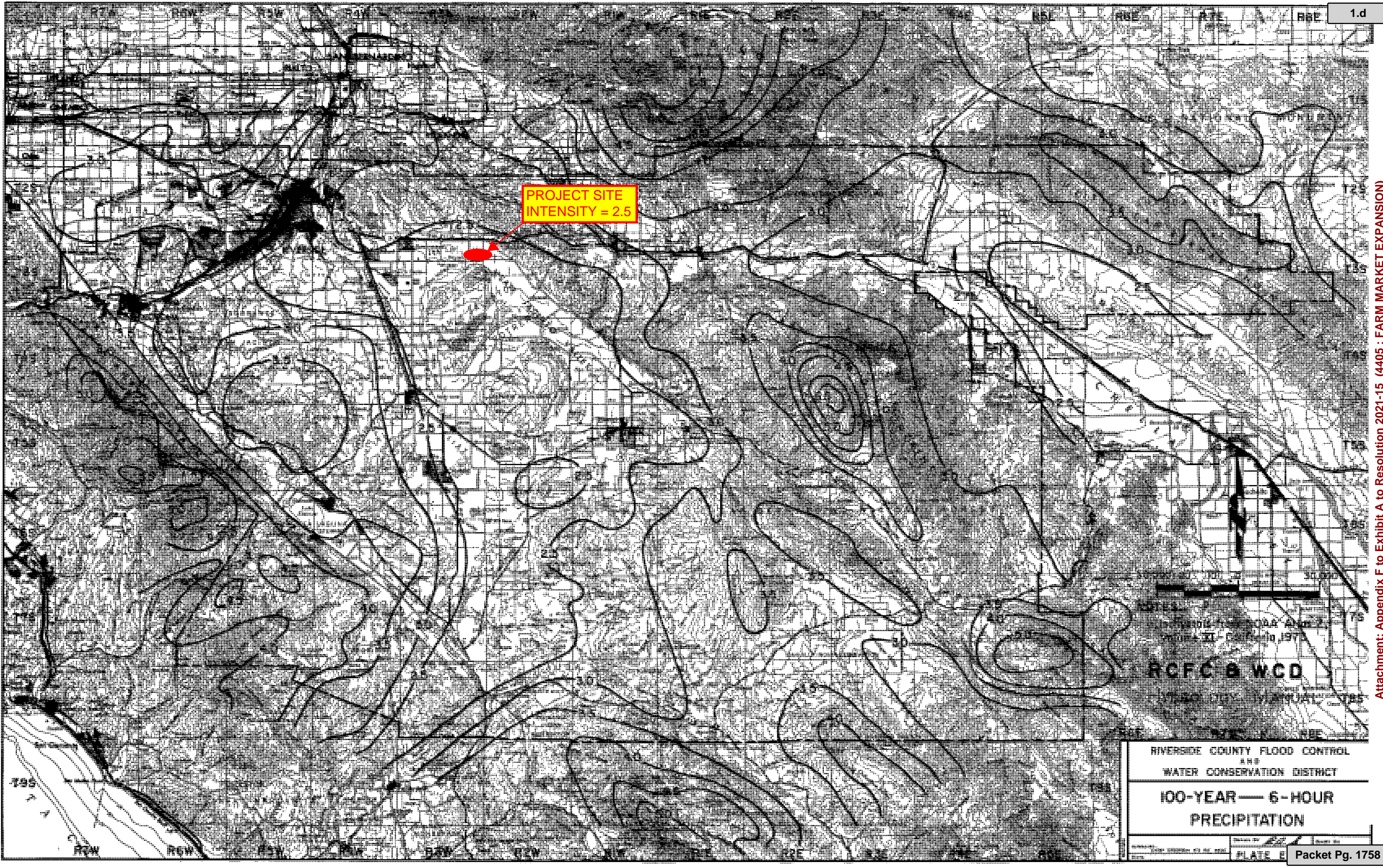
RCFC & WCD

RIVERSIDE COUNTY FLOOD CONTROL
AND
WATER CONSERVATION DISTRICT

2-YEAR — 6-HOUR
PRECIPITATION

PLATE E

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)



Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

PROJECT SITE
INTENSITY = 1.8

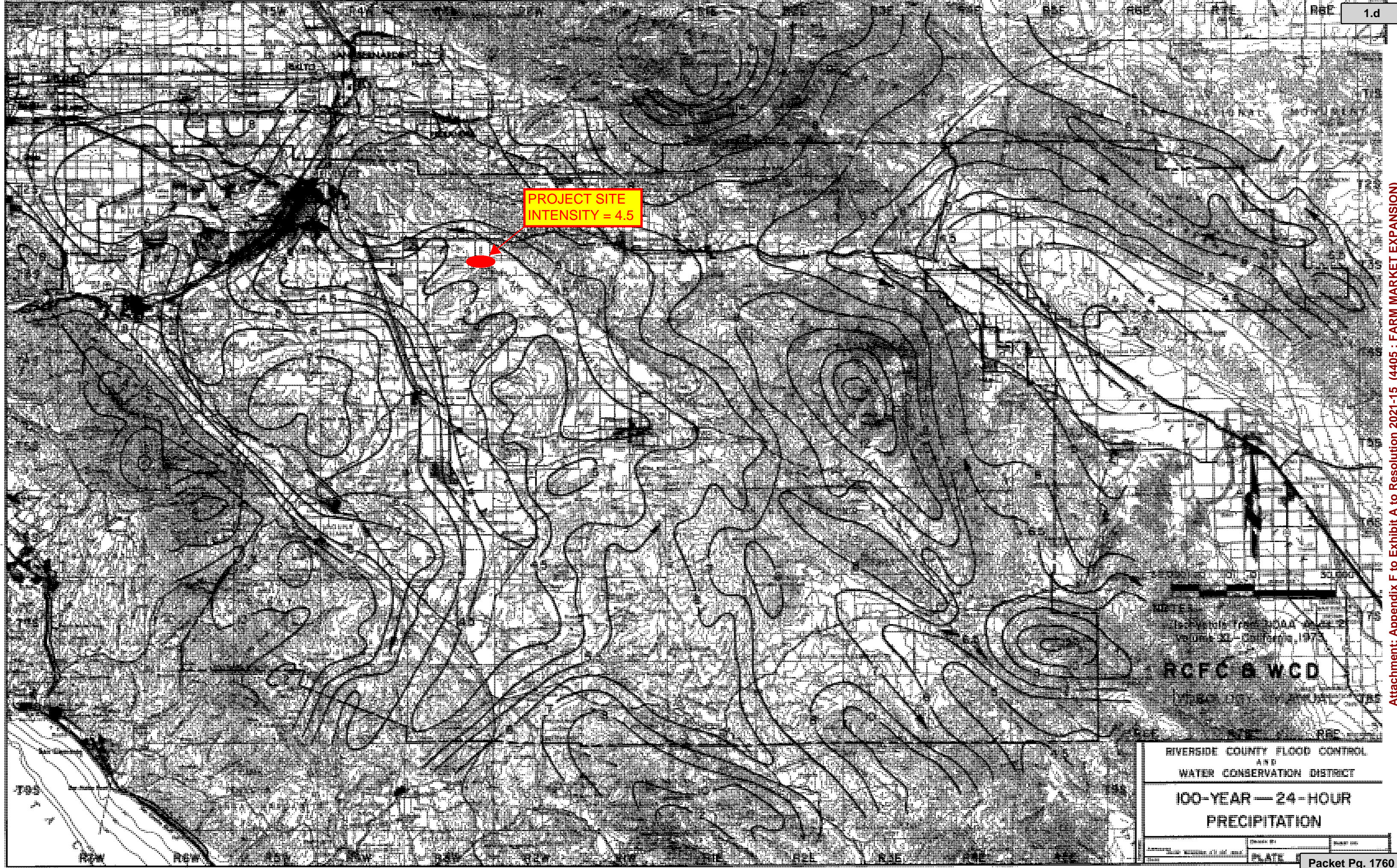
NOTES:
1. Contours are based on 1971 data.
2. Contours are based on 1971 data.
3. Contours are based on 1971 data.

RCFC & WCD

RIVERSIDE COUNTY FLOOD CONTROL
AND
WATER CONSERVATION DISTRICT

2-YEAR — 24-HOUR
PRECIPITATION

PLATE



PROJECT SITE
INTENSITY = 4.5

RIVERSIDE COUNTY FLOOD CONTROL
 AND
 WATER CONSERVATION DISTRICT
RCFC & WCD

RIVERSIDE COUNTY FLOOD CONTROL
 AND
 WATER CONSERVATION DISTRICT
**100-YEAR — 24-HOUR
 PRECIPITATION**

PLATE

SECTION 3 – Hydrology Calculations

- Rational Hydrology Analysis
- Unit-Hydrograph Analysis

Area 'A' – 10 Year Pre-Development Condition – Rational Method

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2014 Version 9.0
 Rational Hydrology Study Date: 07/23/20 File:EX10.out

 FARM MARKET EXPANSION
 EXISTING CONDITION - RATIONAL MEATHOD - 10 YEAR STORM
 WMB & ASSOCIATES, JULY 2020
 BY: BRIAN LOWELL, PE

***** Hydrology Study Control Information *****

English (in-lb) Units used in input data file

Program License Serial Number 6407

Rational Method Hydrology Program based on
 Riverside County Flood Control & Water Conservation District
 1978 hydrology manual

Storm event (year) = 10.00 Antecedent Moisture Condition = 2

2 year, 1 hour precipitation = 0.500(In.)
 100 year, 1 hour precipitation = 1.200(In.)

Storm event year = 10.0
 Calculated rainfall intensity data:
 1 hour intensity = 0.788(In/Hr)
 Slope of intensity duration curve = 0.5000

 Process from Point/Station 100.000 to Point/Station 101.000
 **** INITIAL AREA EVALUATION ****

Initial area flow distance = 175.000(Ft.)
 Top (of initial area) elevation = 1600.900(Ft.)
 Bottom (of initial area) elevation = 1599.000(Ft.)
 Difference in elevation = 1.900(Ft.)
 Slope = 0.01086 s(percent)= 1.09
 $TC = k(0.300)*[(length^3)/(elevation\ change)]^{0.2}$
 Initial area time of concentration = 5.851 min.
 Rainfall intensity = 2.523(In/Hr) for a 10.0 year storm
 COMMERCIAL subarea type
 Runoff Coefficient = 0.874
 Decimal fraction soil group A = 0.000
 Decimal fraction soil group B = 1.000
 Decimal fraction soil group C = 0.000
 Decimal fraction soil group D = 0.000
 RI index for soil(AMC 2) = 56.00
 Pervious area fraction = 0.100; Impervious fraction = 0.900
 Initial subarea runoff = 1.742(CFS)
 Total initial stream area = 0.790(Ac.)
 Pervious area fraction = 0.100

 Process from Point/Station 101.000 to Point/Station 102.000
 **** NATURAL CHANNEL TIME + SUBAREA FLOW ADDITION ****

Top of natural channel elevation = 1599.000(Ft.)
 End of natural channel elevation = 1593.000(Ft.)
 Length of natural channel = 180.000(Ft.)
 Estimated mean flow rate at midpoint of channel = 2.667(CFS)

Natural valley channel type used

L.A. County flood control district formula for channel velocity:
 $Velocity(ft/s) = (7 + 8(q(English\ Units)^{.352})(slope^{0.5}))$
 Velocity using mean channel flow = 3.34(Ft/s)

Correction to map slope used on extremely rugged channels with drops and waterfalls (Plate D-6.2)

Normal channel slope = 0.0333
 Corrected/adjusted channel slope = 0.0333
 Travel time = 0.90 min. TC = 6.75 min.

Adding area flow to channel
 UNDEVELOPED (poor cover) subarea
 Runoff Coefficient = 0.776
 Decimal fraction soil group A = 0.000
 Decimal fraction soil group B = 1.000
 Decimal fraction soil group C = 0.000
 Decimal fraction soil group D = 0.000
 RI index for soil(AMC 2) = 78.00
 Pervious area fraction = 1.000; Impervious fraction = 0.000
 Rainfall intensity = 2.350(In/Hr) for a 10.0 year storm
 Subarea runoff = 1.531(CFS) for 0.840(Ac.)
 Total runoff = 3.273(CFS) Total area = 1.630(Ac.)
 End of computations, total study area = 1.63 (Ac.)
 The following figures may
 be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(A_p) = 0.564
 Area averaged RI index number = 67.3

- **Area 'A' – 100 Year Pre-Development Condition – Rational Method**

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2014 Version 9.0
Rational Hydrology Study Date: 07/23/20 File:EX100.out

FARM MARKET EXPANSION
EXISTING CONDITION - RATIONAL MEATHOD - 100 YEAR STORM
WMB & ASSOCIATES, JULY 2020
BY: BRIAN LOWELL, PE

***** Hydrology Study Control Information *****

English (in-lb) Units used in input data file

Program License Serial Number 6407

Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) = 100.00 Antecedent Moisture Condition = 3

2 year, 1 hour precipitation = 0.500(In.)
100 year, 1 hour precipitation = 1.200(In.)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity = 1.200(In/Hr)
Slope of intensity duration curve = 0.5000

Process from Point/Station 100.000 to Point/Station 101.000
**** INITIAL AREA EVALUATION ****

Initial area flow distance = 175.000(Ft.)
Top (of initial area) elevation = 1600.900(Ft.)
Bottom (of initial area) elevation = 1599.000(Ft.)
Difference in elevation = 1.900(Ft.)
Slope = 0.01086 s(percent)= 1.09
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 5.851 min.
Rainfall intensity = 3.843(In/Hr) for a 100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.891
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 3) = 74.80
Pervious area fraction = 0.100; Impervious fraction = 0.900
Initial subarea runoff = 2.704(CFS)
Total initial stream area = 0.790(Ac.)
Pervious area fraction = 0.100

Process from Point/Station 101.000 to Point/Station 102.000
**** NATURAL CHANNEL TIME + SUBAREA FLOW ADDITION ****

Top of natural channel elevation = 1599.000(Ft.)
End of natural channel elevation = 1593.000(Ft.)
Length of natural channel = 180.000(Ft.)
Estimated mean flow rate at midpoint of channel = 4.141(CFS)

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Natural valley channel type used
 L.A. County flood control district formula for channel velocity:
 $Velocity(ft/s) = (7 + 8(q(English\ Units)^{.352})(slope^{.5}))$
 Velocity using mean channel flow = 3.69(Ft/s)

Correction to map slope used on extremely rugged channels with
 drops and waterfalls (Plate D-6.2)

Normal channel slope = 0.0333
 Corrected/adjusted channel slope = 0.0333
 Travel time = 0.81 min. TC = 6.66 min.

Adding area flow to channel
 UNDEVELOPED (poor cover) subarea
 Runoff Coefficient = 0.864
 Decimal fraction soil group A = 0.000
 Decimal fraction soil group B = 1.000
 Decimal fraction soil group C = 0.000
 Decimal fraction soil group D = 0.000
 RI index for soil(AMC 3) = 89.80
 Pervious area fraction = 1.000; Impervious fraction = 0.000
 Rainfall intensity = 3.601(In/Hr) for a 100.0 year storm
 Subarea runoff = 2.612(CFS) for 0.840(Ac.)
 Total runoff = 5.316(CFS) Total area = 1.630(Ac.)
 End of computations, total study area = 1.63 (Ac.)
 The following figures may
 be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(A_p) = 0.564
 Area averaged RI index number = 67.3

- **Area 'A' – 10 Year Post-Development Condition – Rational Method**

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2014 Version 9.0
Rational Hydrology Study Date: 07/23/20 File:prl0.out

FARM MARKET EXPANSION
PROPOSED CONDITION - RATIONAL MEATHOD - 10 YEAR STORM
WMB & ASSOCIATES, JULY 2020
BY: BRIAN LOWELL, PE

***** Hydrology Study Control Information *****

English (in-lb) Units used in input data file

Program License Serial Number 6407

Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) = 10.00 Antecedent Moisture Condition = 2

2 year, 1 hour precipitation = 0.500(In.)
100 year, 1 hour precipitation = 1.200(In.)

Storm event year = 10.0
Calculated rainfall intensity data:
1 hour intensity = 0.788(In/Hr)
Slope of intensity duration curve = 0.5000

Process from Point/Station 100.000 to Point/Station 101.000
**** INITIAL AREA EVALUATION ****

Initial area flow distance = 121.000(Ft.)
Top (of initial area) elevation = 1599.400(Ft.)
Bottom (of initial area) elevation = 1597.800(Ft.)
Difference in elevation = 1.600(Ft.)
Slope = 0.01322 s(percent)= 1.32
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Warning: TC computed to be less than 5 min.; program is assuming the
time of concentration is 5 minutes.
Initial area time of concentration = 5.000 min.
Rainfall intensity = 2.730(In/Hr) for a 10.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.875
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2) = 56.00
Pervious area fraction = 0.100; Impervious fraction = 0.900
Initial subarea runoff = 0.573(CFS)
Total initial stream area = 0.240(Ac.)
Pervious area fraction = 0.100

Process from Point/Station 101.000 to Point/Station 102.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1594.900(Ft.)
Downstream point/station elevation = 1594.500(Ft.)
Pipe length = 44.00(Ft.) Manning's N = 0.013
No. of pipes = 1 Required pipe flow = 0.573(CFS)

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Nearest computed pipe diameter = 9.00(In.)
 Calculated individual pipe flow = 0.573(CFS)
 Normal flow depth in pipe = 3.75(In.)
 Flow top width inside pipe = 8.87(In.)
 Critical Depth = 4.11(In.)
 Pipe flow velocity = 3.29(Ft/s)
 Travel time through pipe = 0.22 min.
 Time of concentration (TC) = 5.22 min.

 Process from Point/Station 101.000 to Point/Station 102.000
 **** CONFLUENCE OF MINOR STREAMS ****

 Along Main Stream number: 1 in normal stream number 1
 Stream flow area = 0.240(Ac.)
 Runoff from this stream = 0.573(CFS)
 Time of concentration = 5.22 min.
 Rainfall intensity = 2.671(In/Hr)

 Process from Point/Station 103.000 to Point/Station 104.000
 **** INITIAL AREA EVALUATION ****

 Initial area flow distance = 60.000(Ft.)
 Top (of initial area) elevation = 1597.000(Ft.)
 Bottom (of initial area) elevation = 1596.500(Ft.)
 Difference in elevation = 0.500(Ft.)
 Slope = 0.00833 s(percent)= 0.83
 $TC = k(0.300)*[(length^3)/(elevation\ change)]^{0.2}$
 Warning: TC computed to be less than 5 min.; program is assuming the
 time of concentration is 5 minutes.
 Initial area time of concentration = 5.000 min.
 Rainfall intensity = 2.730(In/Hr) for a 10.0 year storm
 COMMERCIAL subarea type
 Runoff Coefficient = 0.875
 Decimal fraction soil group A = 0.000
 Decimal fraction soil group B = 1.000
 Decimal fraction soil group C = 0.000
 Decimal fraction soil group D = 0.000
 RI index for soil(AMC 2) = 56.00
 Pervious area fraction = 0.100; Impervious fraction = 0.900
 Initial subarea runoff = 0.239(CFS)
 Total initial stream area = 0.100(Ac.)
 Pervious area fraction = 0.100

 Process from Point/Station 104.000 to Point/Station 102.000
 **** PIPEFLOW TRAVEL TIME (Program estimated size) ****

 Upstream point/station elevation = 1595.000(Ft.)
 Downstream point/station elevation = 1594.500(Ft.)
 Pipe length = 30.00(Ft.) Manning's N = 0.013
 No. of pipes = 1 Required pipe flow = 0.239(CFS)
 Nearest computed pipe diameter = 6.00(In.)
 Calculated individual pipe flow = 0.239(CFS)
 Normal flow depth in pipe = 2.37(In.)
 Flow top width inside pipe = 5.87(In.)
 Critical Depth = 2.95(In.)
 Pipe flow velocity = 3.31(Ft/s)
 Travel time through pipe = 0.15 min.
 Time of concentration (TC) = 5.15 min.

 Process from Point/Station 104.000 to Point/Station 102.000
 **** CONFLUENCE OF MINOR STREAMS ****

 Along Main Stream number: 1 in normal stream number 2
 Stream flow area = 0.100(Ac.)
 Runoff from this stream = 0.239(CFS)
 Time of concentration = 5.15 min.

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Rainfall intensity = 2.689(In/Hr)
 Summary of stream data:

Stream No.	Flow rate (CFS)	TC (min)	Rainfall Intensity (In/Hr)
------------	-----------------	----------	----------------------------

1	0.573	5.22	2.671
2	0.239	5.15	2.689

Largest stream flow has longer time of concentration

Qp = 0.573 + sum of
 Qb Ia/Ib
 0.239 * 0.993 = 0.237
 Qp = 0.810

Total of 2 streams to confluence:
 Flow rates before confluence point:
 0.573 0.239

Area of streams before confluence:
 0.240 0.100

Results of confluence:
 Total flow rate = 0.810(CFS)
 Time of concentration = 5.223 min.
 Effective stream area after confluence = 0.340(Ac.)

 Process from Point/Station 102.000 to Point/Station 105.000
 **** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1594.500(Ft.)
 Downstream point/station elevation = 1593.600(Ft.)
 Pipe length = 113.00(Ft.) Manning's N = 0.013
 No. of pipes = 1 Required pipe flow = 0.810(CFS)
 Nearest computed pipe diameter = 9.00(In.)
 Calculated individual pipe flow = 0.810(CFS)
 Normal flow depth in pipe = 4.76(In.)
 Flow top width inside pipe = 8.99(In.)
 Critical Depth = 4.93(In.)
 Pipe flow velocity = 3.42(Ft/s)
 Travel time through pipe = 0.55 min.
 Time of concentration (TC) = 5.77 min.

 Process from Point/Station 102.000 to Point/Station 105.000
 **** CONFLUENCE OF MAIN STREAMS ****

The following data inside Main Stream is listed:
 In Main Stream number: 1
 Stream flow area = 0.340(Ac.)
 Runoff from this stream = 0.810(CFS)
 Time of concentration = 5.77 min.
 Rainfall intensity = 2.540(In/Hr)
 Program is now starting with Main Stream No. 2

 Process from Point/Station 100.000 to Point/Station 106.000
 **** INITIAL AREA EVALUATION ****

Initial area flow distance = 187.000(Ft.)
 Top (of initial area) elevation = 1599.400(Ft.)
 Bottom (of initial area) elevation = 1597.100(Ft.)
 Difference in elevation = 2.300(Ft.)
 Slope = 0.01230 s(percent)= 1.23
 TC = k(0.300)*[(length^3)/(elevation change)]^0.2
 Initial area time of concentration = 5.860 min.
 Rainfall intensity = 2.521(In/Hr) for a 10.0 year storm
 COMMERCIAL subarea type
 Runoff Coefficient = 0.874
 Decimal fraction soil group A = 0.000
 Decimal fraction soil group B = 1.000
 Decimal fraction soil group C = 0.000

Decimal fraction soil group D = 0.000
 RI index for soil(AMC 2) = 56.00
 Pervious area fraction = 0.100; Impervious fraction = 0.900
 Initial subarea runoff = 0.969(CFS)
 Total initial stream area = 0.440(Ac.)
 Pervious area fraction = 0.100

 Process from Point/Station 106.000 to Point/Station 107.000
 **** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1595.000(Ft.)
 Downstream point/station elevation = 1594.300(Ft.)
 Pipe length = 72.00(Ft.) Manning's N = 0.013
 No. of pipes = 1 Required pipe flow = 0.969(CFS)
 Nearest computed pipe diameter = 9.00(In.)
 Calculated individual pipe flow = 0.969(CFS)
 Normal flow depth in pipe = 4.99(In.)
 Flow top width inside pipe = 8.95(In.)
 Critical Depth = 5.42(In.)
 Pipe flow velocity = 3.85(Ft/s)
 Travel time through pipe = 0.31 min.
 Time of concentration (TC) = 6.17 min.

 Process from Point/Station 106.000 to Point/Station 107.000
 **** CONFLUENCE OF MINOR STREAMS ****

Along Main Stream number: 2 in normal stream number 1
 Stream flow area = 0.440(Ac.)
 Runoff from this stream = 0.969(CFS)
 Time of concentration = 6.17 min.
 Rainfall intensity = 2.457(In/Hr)

 Process from Point/Station 100.000 to Point/Station 108.000
 **** INITIAL AREA EVALUATION ****

Initial area flow distance = 97.000(Ft.)
 Top (of initial area) elevation = 1599.400(Ft.)
 Bottom (of initial area) elevation = 1596.400(Ft.)
 Difference in elevation = 3.000(Ft.)
 Slope = 0.03093 s(percent) = 3.09
 $TC = k(0.300)*[(length^3)/(elevation\ change)]^{0.2}$
 Warning: TC computed to be less than 5 min.; program is assuming the
 time of concentration is 5 minutes.
 Initial area time of concentration = 5.000 min.
 Rainfall intensity = 2.730(In/Hr) for a 10.0 year storm
 COMMERCIAL subarea type
 Runoff Coefficient = 0.875
 Decimal fraction soil group A = 0.000
 Decimal fraction soil group B = 1.000
 Decimal fraction soil group C = 0.000
 Decimal fraction soil group D = 0.000
 RI index for soil(AMC 2) = 56.00
 Pervious area fraction = 0.100; Impervious fraction = 0.900
 Initial subarea runoff = 0.478(CFS)
 Total initial stream area = 0.200(Ac.)
 Pervious area fraction = 0.100

 Process from Point/Station 108.000 to Point/Station 107.000
 **** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1594.700(Ft.)
 Downstream point/station elevation = 1594.300(Ft.)
 Pipe length = 19.00(Ft.) Manning's N = 0.013
 No. of pipes = 1 Required pipe flow = 0.478(CFS)
 Nearest computed pipe diameter = 6.00(In.)
 Calculated individual pipe flow = 0.478(CFS)

Normal flow depth in pipe = 3.30(In.)
 Flow top width inside pipe = 5.97(In.)
 Critical Depth = 4.23(In.)
 Pipe flow velocity = 4.31(Ft/s)
 Travel time through pipe = 0.07 min.
 Time of concentration (TC) = 5.07 min.

 Process from Point/Station 108.000 to Point/Station 107.000
 **** CONFLUENCE OF MINOR STREAMS ****

Along Main Stream number: 2 in normal stream number 2
 Stream flow area = 0.200(Ac.)
 Runoff from this stream = 0.478(CFS)
 Time of concentration = 5.07 min.
 Rainfall intensity = 2.710(In/Hr)
 Summary of stream data:

Stream No.	Flow rate (CFS)	TC (min)	Rainfall Intensity (In/Hr)
------------	-----------------	----------	----------------------------

1	0.969	6.17	2.457
2	0.478	5.07	2.710

Largest stream flow has longer time of concentration

Qp = 0.969 + sum of
 Qb Ia/Ib
 0.478 * 0.907 = 0.433
 Qp = 1.402

Total of 2 streams to confluence:

Flow rates before confluence point:
 0.969 0.478

Area of streams before confluence:
 0.440 0.200

Results of confluence:

Total flow rate = 1.402(CFS)
 Time of concentration = 6.171 min.
 Effective stream area after confluence = 0.640(Ac.)

 Process from Point/Station 107.000 to Point/Station 105.000
 **** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1594.300(Ft.)
 Downstream point/station elevation = 1593.600(Ft.)
 Pipe length = 145.00(Ft.) Manning's N = 0.013
 No. of pipes = 1 Required pipe flow = 1.402(CFS)
 Nearest computed pipe diameter = 12.00(In.)
 Calculated individual pipe flow = 1.402(CFS)
 Normal flow depth in pipe = 6.47(In.)
 Flow top width inside pipe = 11.96(In.)
 Critical Depth = 6.01(In.)
 Pipe flow velocity = 3.25(Ft/s)
 Travel time through pipe = 0.74 min.
 Time of concentration (TC) = 6.91 min.

 Process from Point/Station 107.000 to Point/Station 105.000
 **** CONFLUENCE OF MAIN STREAMS ****

The following data inside Main Stream is listed:

In Main Stream number: 2
 Stream flow area = 0.640(Ac.)
 Runoff from this stream = 1.402(CFS)
 Time of concentration = 6.91 min.
 Rainfall intensity = 2.321(In/Hr)
 Summary of stream data:

Stream No.	Flow rate (CFS)	TC (min)	Rainfall Intensity (In/Hr)
------------	-----------------	----------	----------------------------

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

1 0.810 5.77 2.540
 2 1.402 6.91 2.321
 Largest stream flow has longer time of concentration
 $Q_p = 1.402 + \text{sum of}$
 $Q_b \quad I_a/I_b$
 0.810 * 0.914 = 0.741
 $Q_p = 2.143$

Total of 2 main streams to confluence:
 Flow rates before confluence point:
 0.810 1.402
 Area of streams before confluence:
 0.340 0.640

Results of confluence:
 Total flow rate = 2.143(CFS)
 Time of concentration = 6.915 min.
 Effective stream area after confluence = 0.980(Ac.)

 Process from Point/Station 105.000 to Point/Station 109.000
 **** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1593.600(Ft.)
 Downstream point/station elevation = 1593.000(Ft.)
 Pipe length = 81.00(Ft.) Manning's N = 0.013
 No. of pipes = 1 Required pipe flow = 2.143(CFS)
 Nearest computed pipe diameter = 12.00(In.)
 Calculated individual pipe flow = 2.143(CFS)
 Normal flow depth in pipe = 7.39(In.)
 Flow top width inside pipe = 11.67(In.)
 Critical Depth = 7.51(In.)
 Pipe flow velocity = 4.22(Ft/s)
 Travel time through pipe = 0.32 min.
 Time of concentration (TC) = 7.23 min.

 Process from Point/Station 105.000 to Point/Station 109.000
 **** CONFLUENCE OF MINOR STREAMS ****

Along Main Stream number: 1 in normal stream number 1
 Stream flow area = 0.980(Ac.)
 Runoff from this stream = 2.143(CFS)
 Time of concentration = 7.23 min.
 Rainfall intensity = 2.269(In/Hr)

 Process from Point/Station 110.000 to Point/Station 109.000
 **** INITIAL AREA EVALUATION ****

Initial area flow distance = 268.000(Ft.)
 Top (of initial area) elevation = 1600.500(Ft.)
 Bottom (of initial area) elevation = 1596.300(Ft.)
 Difference in elevation = 4.200(Ft.)
 Slope = 0.01567 s(percent)= 1.57
 $TC = k(0.300)*[(\text{length}^3)/(\text{elevation change})]^{0.2}$
 Initial area time of concentration = 6.447 min.
 Rainfall intensity = 2.404(In/Hr) for a 10.0 year storm
 COMMERCIAL subarea type
 Runoff Coefficient = 0.873
 Decimal fraction soil group A = 0.000
 Decimal fraction soil group B = 1.000
 Decimal fraction soil group C = 0.000
 Decimal fraction soil group D = 0.000
 RI index for soil(AMC 2) = 56.00
 Pervious area fraction = 0.100; Impervious fraction = 0.900
 Initial subarea runoff = 1.468(CFS)
 Total initial stream area = 0.700(Ac.)

Pervious area fraction = 0.100

 Process from Point/Station 110.000 to Point/Station 109.000
 **** CONFLUENCE OF MINOR STREAMS ****

Along Main Stream number: 1 in normal stream number 2
 Stream flow area = 0.700(Ac.)
 Runoff from this stream = 1.468(CFS)
 Time of concentration = 6.45 min.
 Rainfall intensity = 2.404(In/Hr)
 Summary of stream data:

Stream No.	Flow rate (CFS)	TC (min)	Rainfall Intensity (In/Hr)
------------	-----------------	----------	----------------------------

1	2.143	7.23	2.269
2	1.468	6.45	2.404

Largest stream flow has longer time of concentration

Qp = 2.143 + sum of
 Qb Ia/Ib
 1.468 * 0.944 = 1.386
 Qp = 3.529

Total of 2 streams to confluence:
 Flow rates before confluence point:
 2.143 1.468

Area of streams before confluence:
 0.980 0.700

Results of confluence:

Total flow rate = 3.529(CFS)
 Time of concentration = 7.235 min.
 Effective stream area after confluence = 1.680(Ac.)
 End of computations, total study area = 1.68 (Ac.)

The following figures may be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.100
 Area averaged RI index number = 56.0

- **Area 'A' – 100 Year Post-Development Condition – Rational Method**

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2014 Version 9.0
 Rational Hydrology Study Date: 07/23/20 File:prl100.out

 FARM MARKET EXPANSION
 PROPOSED CONDITION - RATIONAL MEATHOD - 100 YEAR STORM
 WMB & ASSOCIATES, JULY 2020
 BY: BRIAN LOWELL, PE

***** Hydrology Study Control Information *****

English (in-lb) Units used in input data file

Program License Serial Number 6407

Rational Method Hydrology Program based on
 Riverside County Flood Control & Water Conservation District
 1978 hydrology manual

Storm event (year) = 100.00 Antecedent Moisture Condition = 3

2 year, 1 hour precipitation = 0.500(In.)
 100 year, 1 hour precipitation = 1.200(In.)

Storm event year = 100.0
 Calculated rainfall intensity data:
 1 hour intensity = 1.200(In/Hr)
 Slope of intensity duration curve = 0.5000

 Process from Point/Station 100.000 to Point/Station 101.000
 **** INITIAL AREA EVALUATION ****

Initial area flow distance = 121.000(Ft.)
 Top (of initial area) elevation = 1599.400(Ft.)
 Bottom (of initial area) elevation = 1597.800(Ft.)
 Difference in elevation = 1.600(Ft.)
 Slope = 0.01322 s(percent)= 1.32
 TC = k(0.300)*[(length^3)/(elevation change)]^0.2
 Warning: TC computed to be less than 5 min.; program is assuming the
 time of concentration is 5 minutes.
 Initial area time of concentration = 5.000 min.
 Rainfall intensity = 4.157(In/Hr) for a 100.0 year storm
 COMMERCIAL subarea type
 Runoff Coefficient = 0.891
 Decimal fraction soil group A = 0.000
 Decimal fraction soil group B = 1.000
 Decimal fraction soil group C = 0.000
 Decimal fraction soil group D = 0.000
 RI index for soil(AMC 3) = 74.80
 Pervious area fraction = 0.100; Impervious fraction = 0.900
 Initial subarea runoff = 0.889(CFS)
 Total initial stream area = 0.240(Ac.)
 Pervious area fraction = 0.100

 Process from Point/Station 101.000 to Point/Station 102.000
 **** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1594.900(Ft.)
 Downstream point/station elevation = 1594.500(Ft.)
 Pipe length = 44.00(Ft.) Manning's N = 0.013
 No. of pipes = 1 Required pipe flow = 0.889(CFS)

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Nearest computed pipe diameter = 9.00(In.)
 Calculated individual pipe flow = 0.889(CFS)
 Normal flow depth in pipe = 4.83(In.)
 Flow top width inside pipe = 8.98(In.)
 Critical Depth = 5.18(In.)
 Pipe flow velocity = 3.68(Ft/s)
 Travel time through pipe = 0.20 min.
 Time of concentration (TC) = 5.20 min.

 Process from Point/Station 101.000 to Point/Station 102.000
 **** CONFLUENCE OF MINOR STREAMS ****

 Along Main Stream number: 1 in normal stream number 1
 Stream flow area = 0.240(Ac.)
 Runoff from this stream = 0.889(CFS)
 Time of concentration = 5.20 min.
 Rainfall intensity = 4.076(In/Hr)

 Process from Point/Station 103.000 to Point/Station 104.000
 **** INITIAL AREA EVALUATION ****

 Initial area flow distance = 60.000(Ft.)
 Top (of initial area) elevation = 1597.000(Ft.)
 Bottom (of initial area) elevation = 1596.500(Ft.)
 Difference in elevation = 0.500(Ft.)
 Slope = 0.00833 s(percent)= 0.83
 $TC = k(0.300)*[(length^3)/(elevation\ change)]^{0.2}$
 Warning: TC computed to be less than 5 min.; program is assuming the
 time of concentration is 5 minutes.
 Initial area time of concentration = 5.000 min.
 Rainfall intensity = 4.157(In/Hr) for a 100.0 year storm
 COMMERCIAL subarea type
 Runoff Coefficient = 0.891
 Decimal fraction soil group A = 0.000
 Decimal fraction soil group B = 1.000
 Decimal fraction soil group C = 0.000
 Decimal fraction soil group D = 0.000
 RI index for soil(AMC 3) = 74.80
 Pervious area fraction = 0.100; Impervious fraction = 0.900
 Initial subarea runoff = 0.370(CFS)
 Total initial stream area = 0.100(Ac.)
 Pervious area fraction = 0.100

 Process from Point/Station 104.000 to Point/Station 102.000
 **** PIPEFLOW TRAVEL TIME (Program estimated size) ****

 Upstream point/station elevation = 1595.000(Ft.)
 Downstream point/station elevation = 1594.500(Ft.)
 Pipe length = 30.00(Ft.) Manning's N = 0.013
 No. of pipes = 1 Required pipe flow = 0.370(CFS)
 Nearest computed pipe diameter = 6.00(In.)
 Calculated individual pipe flow = 0.370(CFS)
 Normal flow depth in pipe = 3.04(In.)
 Flow top width inside pipe = 6.00(In.)
 Critical Depth = 3.71(In.)
 Pipe flow velocity = 3.71(Ft/s)
 Travel time through pipe = 0.13 min.
 Time of concentration (TC) = 5.13 min.

 Process from Point/Station 104.000 to Point/Station 102.000
 **** CONFLUENCE OF MINOR STREAMS ****

 Along Main Stream number: 1 in normal stream number 2
 Stream flow area = 0.100(Ac.)
 Runoff from this stream = 0.370(CFS)
 Time of concentration = 5.13 min.

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Rainfall intensity = 4.102(In/Hr)
 Summary of stream data:

Stream No.	Flow rate (CFS)	TC (min)	Rainfall Intensity (In/Hr)
------------	-----------------	----------	----------------------------

1	0.889	5.20	4.076
2	0.370	5.13	4.102

Largest stream flow has longer time of concentration

Qp = 0.889 + sum of
 Qb Ia/Ib
 0.370 * 0.994 = 0.368
 Qp = 1.257

Total of 2 streams to confluence:
 Flow rates before confluence point:
 0.889 0.370

Area of streams before confluence:
 0.240 0.100

Results of confluence:
 Total flow rate = 1.257(CFS)
 Time of concentration = 5.199 min.
 Effective stream area after confluence = 0.340(Ac.)

 Process from Point/Station 102.000 to Point/Station 105.000
 **** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1594.500(Ft.)
 Downstream point/station elevation = 1593.600(Ft.)
 Pipe length = 113.00(Ft.) Manning's N = 0.013
 No. of pipes = 1 Required pipe flow = 1.257(CFS)
 Nearest computed pipe diameter = 9.00(In.)
 Calculated individual pipe flow = 1.257(CFS)
 Normal flow depth in pipe = 6.39(In.)
 Flow top width inside pipe = 8.17(In.)
 Critical Depth = 6.19(In.)
 Pipe flow velocity = 3.75(Ft/s)
 Travel time through pipe = 0.50 min.
 Time of concentration (TC) = 5.70 min.

 Process from Point/Station 102.000 to Point/Station 105.000
 **** CONFLUENCE OF MAIN STREAMS ****

The following data inside Main Stream is listed:
 In Main Stream number: 1
 Stream flow area = 0.340(Ac.)
 Runoff from this stream = 1.257(CFS)
 Time of concentration = 5.70 min.
 Rainfall intensity = 3.893(In/Hr)
 Program is now starting with Main Stream No. 2

 Process from Point/Station 100.000 to Point/Station 106.000
 **** INITIAL AREA EVALUATION ****

Initial area flow distance = 187.000(Ft.)
 Top (of initial area) elevation = 1599.400(Ft.)
 Bottom (of initial area) elevation = 1597.100(Ft.)
 Difference in elevation = 2.300(Ft.)
 Slope = 0.01230 s(percent)= 1.23
 TC = k(0.300)*[(length^3)/(elevation change)]^0.2
 Initial area time of concentration = 5.860 min.
 Rainfall intensity = 3.840(In/Hr) for a 100.0 year storm
 COMMERCIAL subarea type
 Runoff Coefficient = 0.891
 Decimal fraction soil group A = 0.000
 Decimal fraction soil group B = 1.000
 Decimal fraction soil group C = 0.000

Decimal fraction soil group D = 0.000
 RI index for soil(AMC 3) = 74.80
 Pervious area fraction = 0.100; Impervious fraction = 0.900
 Initial subarea runoff = 1.505(CFS)
 Total initial stream area = 0.440(Ac.)
 Pervious area fraction = 0.100

 Process from Point/Station 106.000 to Point/Station 107.000
 **** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1595.000(Ft.)
 Downstream point/station elevation = 1594.300(Ft.)
 Pipe length = 72.00(Ft.) Manning's N = 0.013
 No. of pipes = 1 Required pipe flow = 1.505(CFS)
 Nearest computed pipe diameter = 9.00(In.)
 Calculated individual pipe flow = 1.505(CFS)
 Normal flow depth in pipe = 6.82(In.)
 Flow top width inside pipe = 7.71(In.)
 Critical Depth = 6.78(In.)
 Pipe flow velocity = 4.19(Ft/s)
 Travel time through pipe = 0.29 min.
 Time of concentration (TC) = 6.15 min.

 Process from Point/Station 106.000 to Point/Station 107.000
 **** CONFLUENCE OF MINOR STREAMS ****

Along Main Stream number: 2 in normal stream number 1
 Stream flow area = 0.440(Ac.)
 Runoff from this stream = 1.505(CFS)
 Time of concentration = 6.15 min.
 Rainfall intensity = 3.749(In/Hr)

 Process from Point/Station 100.000 to Point/Station 108.000
 **** INITIAL AREA EVALUATION ****

Initial area flow distance = 97.000(Ft.)
 Top (of initial area) elevation = 1599.400(Ft.)
 Bottom (of initial area) elevation = 1596.400(Ft.)
 Difference in elevation = 3.000(Ft.)
 Slope = 0.03093 s(percent)= 3.09
 $TC = k(0.300)*[(length^3)/(elevation\ change)]^{0.2}$
 Warning: TC computed to be less than 5 min.; program is assuming the
 time of concentration is 5 minutes.
 Initial area time of concentration = 5.000 min.
 Rainfall intensity = 4.157(In/Hr) for a 100.0 year storm
 COMMERCIAL subarea type
 Runoff Coefficient = 0.891
 Decimal fraction soil group A = 0.000
 Decimal fraction soil group B = 1.000
 Decimal fraction soil group C = 0.000
 Decimal fraction soil group D = 0.000
 RI index for soil(AMC 3) = 74.80
 Pervious area fraction = 0.100; Impervious fraction = 0.900
 Initial subarea runoff = 0.741(CFS)
 Total initial stream area = 0.200(Ac.)
 Pervious area fraction = 0.100

 Process from Point/Station 108.000 to Point/Station 107.000
 **** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1594.700(Ft.)
 Downstream point/station elevation = 1594.300(Ft.)
 Pipe length = 19.00(Ft.) Manning's N = 0.013
 No. of pipes = 1 Required pipe flow = 0.741(CFS)
 Nearest computed pipe diameter = 6.00(In.)
 Calculated individual pipe flow = 0.741(CFS)

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Normal flow depth in pipe = 4.49(In.)
 Flow top width inside pipe = 5.21(In.)
 Critical Depth = 5.18(In.)
 Pipe flow velocity = 4.70(Ft/s)
 Travel time through pipe = 0.07 min.
 Time of concentration (TC) = 5.07 min.

 Process from Point/Station 108.000 to Point/Station 107.000
 **** CONFLUENCE OF MINOR STREAMS ****

Along Main Stream number: 2 in normal stream number 2
 Stream flow area = 0.200(Ac.)
 Runoff from this stream = 0.741(CFS)
 Time of concentration = 5.07 min.
 Rainfall intensity = 4.129(In/Hr)
 Summary of stream data:

Stream No.	Flow rate (CFS)	TC (min)	Rainfall Intensity (In/Hr)
------------	-----------------	----------	----------------------------

1	1.505	6.15	3.749
2	0.741	5.07	4.129

Largest stream flow has longer time of concentration

Qp = 1.505 + sum of
 Qb Ia/Ib
 0.741 * 0.908 = 0.673
 Qp = 2.177

Total of 2 streams to confluence:

Flow rates before confluence point:
 1.505 0.741

Area of streams before confluence:
 0.440 0.200

Results of confluence:

Total flow rate = 2.177(CFS)
 Time of concentration = 6.146 min.
 Effective stream area after confluence = 0.640(Ac.)

 Process from Point/Station 107.000 to Point/Station 105.000
 **** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1594.300(Ft.)
 Downstream point/station elevation = 1593.600(Ft.)
 Pipe length = 145.00(Ft.) Manning's N = 0.013
 No. of pipes = 1 Required pipe flow = 2.177(CFS)
 Nearest computed pipe diameter = 12.00(In.)
 Calculated individual pipe flow = 2.177(CFS)
 Normal flow depth in pipe = 8.73(In.)
 Flow top width inside pipe = 10.69(In.)
 Critical Depth = 7.57(In.)
 Pipe flow velocity = 3.56(Ft/s)
 Travel time through pipe = 0.68 min.
 Time of concentration (TC) = 6.83 min.

 Process from Point/Station 107.000 to Point/Station 105.000
 **** CONFLUENCE OF MAIN STREAMS ****

The following data inside Main Stream is listed:

In Main Stream number: 2
 Stream flow area = 0.640(Ac.)
 Runoff from this stream = 2.177(CFS)
 Time of concentration = 6.83 min.
 Rainfall intensity = 3.558(In/Hr)
 Summary of stream data:

Stream No.	Flow rate (CFS)	TC (min)	Rainfall Intensity (In/Hr)
------------	-----------------	----------	----------------------------

1 1.257 5.70 3.893
 2 2.177 6.83 3.558
 Largest stream flow has longer time of concentration
 $Q_p = 2.177 + \text{sum of}$
 $Q_b \quad I_a/I_b$
 $1.257 * \quad 0.914 = \quad 1.149$
 $Q_p = \quad 3.327$

Total of 2 main streams to confluence:
 Flow rates before confluence point:
 1.257 2.177
 Area of streams before confluence:
 0.340 0.640

Results of confluence:
 Total flow rate = 3.327(CFS)
 Time of concentration = 6.826 min.
 Effective stream area after confluence = 0.980(Ac.)

 Process from Point/Station 105.000 to Point/Station 109.000
 **** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1593.600(Ft.)
 Downstream point/station elevation = 1593.000(Ft.)
 Pipe length = 81.00(Ft.) Manning's N = 0.013
 No. of pipes = 1 Required pipe flow = 3.327(CFS)
 Nearest computed pipe diameter = 15.00(In.)
 Calculated individual pipe flow = 3.327(CFS)
 Normal flow depth in pipe = 8.36(In.)
 Flow top width inside pipe = 14.90(In.)
 Critical Depth = 8.82(In.)
 Pipe flow velocity = 4.73(Ft/s)
 Travel time through pipe = 0.29 min.
 Time of concentration (TC) = 7.11 min.

 Process from Point/Station 105.000 to Point/Station 109.000
 **** CONFLUENCE OF MINOR STREAMS ****

Along Main Stream number: 1 in normal stream number 1
 Stream flow area = 0.980(Ac.)
 Runoff from this stream = 3.327(CFS)
 Time of concentration = 7.11 min.
 Rainfall intensity = 3.486(In/Hr)

 Process from Point/Station 110.000 to Point/Station 109.000
 **** INITIAL AREA EVALUATION ****

Initial area flow distance = 268.000(Ft.)
 Top (of initial area) elevation = 1600.500(Ft.)
 Bottom (of initial area) elevation = 1596.300(Ft.)
 Difference in elevation = 4.200(Ft.)
 Slope = 0.01567 s(percent)= 1.57
 $TC = k(0.300)*[(\text{length}^3)/(\text{elevation change})]^{0.2}$
 Initial area time of concentration = 6.447 min.
 Rainfall intensity = 3.661(In/Hr) for a 100.0 year storm
 COMMERCIAL subarea type
 Runoff Coefficient = 0.890
 Decimal fraction soil group A = 0.000
 Decimal fraction soil group B = 1.000
 Decimal fraction soil group C = 0.000
 Decimal fraction soil group D = 0.000
 RI index for soil(AMC 3) = 74.80
 Pervious area fraction = 0.100; Impervious fraction = 0.900
 Initial subarea runoff = 2.281(CFS)
 Total initial stream area = 0.700(Ac.)

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Pervious area fraction = 0.100

 Process from Point/Station 110.000 to Point/Station 109.000
 **** CONFLUENCE OF MINOR STREAMS ****

Along Main Stream number: 1 in normal stream number 2
 Stream flow area = 0.700(Ac.)
 Runoff from this stream = 2.281(CFS)
 Time of concentration = 6.45 min.
 Rainfall intensity = 3.661(In/Hr)
 Summary of stream data:

Stream No.	Flow rate (CFS)	TC (min)	Rainfall Intensity (In/Hr)
------------	-----------------	----------	----------------------------

1	3.327	7.11	3.486
2	2.281	6.45	3.661

Largest stream flow has longer time of concentration

Qp = 3.327 + sum of
 Qb Ia/Ib
 2.281 * 0.952 = 2.172
 Qp = 5.499

Total of 2 streams to confluence:
 Flow rates before confluence point:
 3.327 2.281

Area of streams before confluence:
 0.980 0.700

Results of confluence:

Total flow rate = 5.499(CFS)
 Time of concentration = 7.111 min.
 Effective stream area after confluence = 1.680(Ac.)
 End of computations, total study area = 1.68 (Ac.)

The following figures may
 be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.100
 Area averaged RI index number = 56.0

- **Area 'A' – 10 Year 1 Hour Pre-Development Condition – Unit Hydrograph**

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
 Study date 07/23/20 File: exl0110.out

 +-----

Riverside County Synthetic Unit Hydrology Method
 RCFC & WCD Manual date - April 1978

Program License Serial Number 6407

 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

English Units used in output format

 FARM MARKET EXPANSION
 EXISTING CONDITION UNIT HYDROGRAPH - 10 YEAR 1 HOUR STORM
 WMB & ASSOCIATES, JULY 2020
 BY: BRIAN LOWELL, PE

 Drainage Area = 1.63(Ac.) = 0.003 Sq. Mi.
 Drainage Area for Depth-Area Areal Adjustment = 1.63(Ac.) = 0.003 Sq. Mi.
 Length along longest watercourse = 355.00(Ft.)
 Length along longest watercourse measured to centroid = 169.00(Ft.)
 Length along longest watercourse = 0.067 Mi.
 Length along longest watercourse measured to centroid = 0.032 Mi.
 Difference in elevation = 7.90(Ft.)
 Slope along watercourse = 117.4986 Ft./Mi.
 Average Manning's 'N' = 0.020
 Lag time = 0.019 Hr.
 Lag time = 1.13 Min.
 25% of lag time = 0.28 Min.
 40% of lag time = 0.45 Min.
 Unit time = 5.00 Min.
 Duration of storm = 1 Hour(s)
 User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
1.63	0.50	0.81

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
1.63	1.20	1.96

STORM EVENT (YEAR) = 10.00
 Area Averaged 2-Year Rainfall = 0.500(In)
 Area Averaged 100-Year Rainfall = 1.200(In)

Point rain (area averaged) = 0.788(In)
 Areal adjustment factor = 100.00 %
 Adjusted average point rain = 0.788(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
1.630	67.30	0.360
Total Area Entered = 1.63(Ac.)		

RI	RI	Infil. Rate	Impervious	Adj. Infil. Rate	Area%	F
AMC2	AMC-2	(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
67.3	67.3	0.391	0.360	0.264	1.000	0.264
Sum (F) =						0.264

Area averaged mean soil loss (F) (In/Hr) = 0.264

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

- **Area 'A' – 10 Year 3 Hour Pre-Development Condition – Unit Hydrograph**

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Unit Hydrograph Analysis

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 Study date 07/23/20 File: exl0310.out

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Riverside County Synthetic Unit Hydrology Method
 RCFC & WCD Manual date - April 1978

Program License Serial Number 6407

English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

English Units used in output format

FARM MARKET EXPANSION
 EXISTING CONDITION UNIT HYDROGRAPH - 10 YEAR 3 HOUR STORM
 WMB & ASSOCIATES, JULY 2020
 BY: BRIAN LOWELL, PE

Drainage Area = 1.63(Ac.) = 0.003 Sq. Mi.
 Drainage Area for Depth-Area Areal Adjustment = 1.63(Ac.) = 0.003 Sq. Mi.
 Length along longest watercourse = 355.00(Ft.)
 Length along longest watercourse measured to centroid = 169.00(Ft.)
 Length along longest watercourse = 0.067 Mi.
 Length along longest watercourse measured to centroid = 0.032 Mi.
 Difference in elevation = 7.90(Ft.)
 Slope along watercourse = 117.4986 Ft./Mi.
 Average Manning's 'N' = 0.020
 Lag time = 0.019 Hr.
 Lag time = 1.13 Min.
 25% of lag time = 0.28 Min.
 40% of lag time = 0.45 Min.
 Unit time = 5.00 Min.
 Duration of storm = 3 Hour(s)
 User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
1.63	0.80	1.30

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
1.63	1.80	2.93

STORM EVENT (YEAR) = 10.00
 Area Averaged 2-Year Rainfall = 0.800(In)
 Area Averaged 100-Year Rainfall = 1.800(In)

Point rain (area averaged) = 1.211(In)
 Areal adjustment factor = 100.00 %
 Adjusted average point rain = 1.211(In)

Sub-Area Data:
 Area(Ac.) Runoff Index Impervious %
 1.630 67.30 0.360
 Total Area Entered = 1.63(Ac.)

RI RI Infil. Rate Impervious Adj. Infil. Rate Area% F

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

AMC2	AMC-2	(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
67.3	67.3	0.391	0.360	0.264	1.000	0.264
						Sum (F) = 0.264

Area averaged mean soil loss (F) (In/Hr) = 0.264
 Minimum soil loss rate ((In/Hr)) = 0.132
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.612

Unit Hydrograph
 VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	442.998	67.832
2	0.167	885.996	32.168
		Sum = 100.000	Sum= 1.643

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.189	(0.264)	0.116
2	0.17	1.30	0.189	(0.264)	0.116
3	0.25	1.10	0.160	(0.264)	0.098
4	0.33	1.50	0.218	(0.264)	0.133
5	0.42	1.50	0.218	(0.264)	0.133
6	0.50	1.80	0.262	(0.264)	0.160
7	0.58	1.50	0.218	(0.264)	0.133
8	0.67	1.80	0.262	(0.264)	0.160
9	0.75	1.80	0.262	(0.264)	0.160
10	0.83	1.50	0.218	(0.264)	0.133
11	0.92	1.60	0.233	(0.264)	0.142
12	1.00	1.80	0.262	(0.264)	0.160
13	1.08	2.20	0.320	(0.264)	0.196
14	1.17	2.20	0.320	(0.264)	0.196
15	1.25	2.20	0.320	(0.264)	0.196
16	1.33	2.00	0.291	(0.264)	0.178
17	1.42	2.60	0.378	(0.264)	0.231
18	1.50	2.70	0.392	(0.264)	0.240
19	1.58	2.40	0.349	(0.264)	0.214
20	1.67	2.70	0.392	(0.264)	0.240
21	1.75	3.30	0.480	0.264 (0.294)	0.215
22	1.83	3.10	0.451	0.264 (0.276)	0.186
23	1.92	2.90	0.422	(0.264)	0.258
24	2.00	3.00	0.436	0.264 (0.267)	0.172
25	2.08	3.10	0.451	0.264 (0.276)	0.186
26	2.17	4.20	0.611	0.264 (0.374)	0.346
27	2.25	5.00	0.727	0.264 (0.445)	0.462
28	2.33	3.50	0.509	0.264 (0.311)	0.244
29	2.42	6.80	0.989	0.264 (0.605)	0.724
30	2.50	7.30	1.061	0.264 (0.649)	0.797
31	2.58	8.20	1.192	0.264 (0.730)	0.928
32	2.67	5.90	0.858	0.264 (0.525)	0.593
33	2.75	2.00	0.291	(0.264)	0.178
34	2.83	1.80	0.262	(0.264)	0.160
35	2.92	1.80	0.262	(0.264)	0.160
36	3.00	0.60	0.087	(0.264)	0.053

(Loss Rate Not Used)
 Sum = 100.0
 Flood volume = Effective rainfall 0.62(In)
 times area 1.6(Ac.)/[In]/(Ft.)] = 0.1(Ac.Ft)
 Total soil loss = 0.59(In)
 Total soil loss = 0.080(Ac.Ft)
 Total rainfall = 1.21(In)
 Flood volume = 3689.4 Cubic Feet
 Total soil loss = 3478.4 Cubic Feet

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Peak flow rate of this hydrograph = 1.455(CFS)

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3 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0006	0.08	Q				
0+10	0.0014	0.12	Q				
0+15	0.0021	0.11	QV				
0+20	0.0030	0.13	QV				
0+25	0.0040	0.14	QV				
0+30	0.0051	0.16	Q V				
0+35	0.0061	0.15	Q V				
0+40	0.0072	0.16	Q V				
0+45	0.0083	0.17	Q V				
0+50	0.0093	0.15	Q V				
0+55	0.0103	0.15	Q V				
1+ 0	0.0114	0.16	Q V				
1+ 5	0.0128	0.19	Q V				
1+10	0.0142	0.20	Q V				
1+15	0.0156	0.20	Q V				
1+20	0.0169	0.19	Q V				
1+25	0.0184	0.22	Q V				
1+30	0.0201	0.25	Q V				
1+35	0.0217	0.23	Q V				
1+40	0.0234	0.24	Q V				
1+45	0.0256	0.32	Q V				
1+50	0.0278	0.32	Q V				
1+55	0.0297	0.28	Q V				
2+ 0	0.0317	0.28	Q V				
2+ 5	0.0337	0.30	Q V				
2+10	0.0370	0.48	Q V				
2+15	0.0419	0.70	Q V				
2+20	0.0454	0.52	Q V				
2+25	0.0519	0.94	Q V				
2+30	0.0606	1.27	Q V				
2+35	0.0706	1.46	Q V				
2+40	0.0786	1.15	Q V				
2+45	0.0816	0.44	Q V				
2+50	0.0828	0.17	Q V				
2+55	0.0839	0.17	Q V				
3+ 0	0.0846	0.09	Q V				
3+ 5	0.0847	0.02	Q V				

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

- **Area 'A' – 10 Year 6 Hour Pre-Development Condition – Unit Hydrograph**

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
 Study date 07/23/20 File: exl0610.out

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Riverside County Synthetic Unit Hydrology Method
 RCFC & WCD Manual date - April 1978

Program License Serial Number 6407

 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

English Units used in output format

 FARM MARKET EXPANSION
 EXISTING CONDITION UNIT HYDROGRAPH - 10 YEAR 6 HOUR STORM
 WMB & ASSOCIATES, JULY 2020
 BY: BRIAN LOWELL, PE

 Drainage Area = 1.63(Ac.) = 0.003 Sq. Mi.
 Drainage Area for Depth-Area Areal Adjustment = 1.63(Ac.) = 0.003 Sq. Mi.
 Length along longest watercourse = 355.00(Ft.)
 Length along longest watercourse measured to centroid = 169.00(Ft.)
 Length along longest watercourse = 0.067 Mi.
 Length along longest watercourse measured to centroid = 0.032 Mi.
 Difference in elevation = 7.90(Ft.)
 Slope along watercourse = 117.4986 Ft./Mi.
 Average Manning's 'N' = 0.020
 Lag time = 0.019 Hr.
 Lag time = 1.13 Min.
 25% of lag time = 0.28 Min.
 40% of lag time = 0.45 Min.
 Unit time = 5.00 Min.
 Duration of storm = 6 Hour(s)
 User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
1.63	1.20	1.96

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
1.63	2.50	4.07

STORM EVENT (YEAR) = 10.00
 Area Averaged 2-Year Rainfall = 1.200(In)
 Area Averaged 100-Year Rainfall = 2.500(In)

Point rain (area averaged) = 1.735(In)
 Areal adjustment factor = 100.00 %
 Adjusted average point rain = 1.735(In)

Sub-Area Data:
 Area(Ac.) Runoff Index Impervious %
 1.630 67.30 0.360
 Total Area Entered = 1.63(Ac.)

RI RI Infil. Rate Impervious Adj. Infil. Rate Area% F

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

AMC2	AMC-2	(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
67.3	67.3	0.391	0.360	0.264	1.000	0.264
						Sum (F) = 0.264

Area averaged mean soil loss (F) (In/Hr) = 0.264
 Minimum soil loss rate ((In/Hr)) = 0.132
 (for 24 hour storm duration)
 Soil loss rate (decimal) = 0.612

Unit Hydrograph
 VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	442.998	67.832
2	0.167	885.996	32.168
		Sum = 100.000	Sum= 1.643

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr)		Effective (In/Hr)
				Max	Low	
1	0.08	0.50	0.104	(0.264)	0.064	0.040
2	0.17	0.60	0.125	(0.264)	0.076	0.048
3	0.25	0.60	0.125	(0.264)	0.076	0.048
4	0.33	0.60	0.125	(0.264)	0.076	0.048
5	0.42	0.60	0.125	(0.264)	0.076	0.048
6	0.50	0.70	0.146	(0.264)	0.089	0.057
7	0.58	0.70	0.146	(0.264)	0.089	0.057
8	0.67	0.70	0.146	(0.264)	0.089	0.057
9	0.75	0.70	0.146	(0.264)	0.089	0.057
10	0.83	0.70	0.146	(0.264)	0.089	0.057
11	0.92	0.70	0.146	(0.264)	0.089	0.057
12	1.00	0.80	0.167	(0.264)	0.102	0.065
13	1.08	0.80	0.167	(0.264)	0.102	0.065
14	1.17	0.80	0.167	(0.264)	0.102	0.065
15	1.25	0.80	0.167	(0.264)	0.102	0.065
16	1.33	0.80	0.167	(0.264)	0.102	0.065
17	1.42	0.80	0.167	(0.264)	0.102	0.065
18	1.50	0.80	0.167	(0.264)	0.102	0.065
19	1.58	0.80	0.167	(0.264)	0.102	0.065
20	1.67	0.80	0.167	(0.264)	0.102	0.065
21	1.75	0.80	0.167	(0.264)	0.102	0.065
22	1.83	0.80	0.167	(0.264)	0.102	0.065
23	1.92	0.80	0.167	(0.264)	0.102	0.065
24	2.00	0.90	0.187	(0.264)	0.115	0.073
25	2.08	0.80	0.167	(0.264)	0.102	0.065
26	2.17	0.90	0.187	(0.264)	0.115	0.073
27	2.25	0.90	0.187	(0.264)	0.115	0.073
28	2.33	0.90	0.187	(0.264)	0.115	0.073
29	2.42	0.90	0.187	(0.264)	0.115	0.073
30	2.50	0.90	0.187	(0.264)	0.115	0.073
31	2.58	0.90	0.187	(0.264)	0.115	0.073
32	2.67	0.90	0.187	(0.264)	0.115	0.073
33	2.75	1.00	0.208	(0.264)	0.127	0.081
34	2.83	1.00	0.208	(0.264)	0.127	0.081
35	2.92	1.00	0.208	(0.264)	0.127	0.081
36	3.00	1.00	0.208	(0.264)	0.127	0.081
37	3.08	1.00	0.208	(0.264)	0.127	0.081
38	3.17	1.10	0.229	(0.264)	0.140	0.089
39	3.25	1.10	0.229	(0.264)	0.140	0.089
40	3.33	1.10	0.229	(0.264)	0.140	0.089
41	3.42	1.20	0.250	(0.264)	0.153	0.097
42	3.50	1.30	0.271	(0.264)	0.166	0.105
43	3.58	1.40	0.291	(0.264)	0.178	0.113
44	3.67	1.40	0.291	(0.264)	0.178	0.113
45	3.75	1.50	0.312	(0.264)	0.191	0.121
46	3.83	1.50	0.312	(0.264)	0.191	0.121

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

47	3.92	1.60	0.333	(0.264)	0.204	0.129
48	4.00	1.60	0.333	(0.264)	0.204	0.129
49	4.08	1.70	0.354	(0.264)	0.217	0.137
50	4.17	1.80	0.375	(0.264)	0.229	0.145
51	4.25	1.90	0.396	(0.264)	0.242	0.153
52	4.33	2.00	0.416	(0.264)	0.255	0.162
53	4.42	2.10	0.437	0.264	(0.268)	0.173
54	4.50	2.10	0.437	0.264	(0.268)	0.173
55	4.58	2.20	0.458	0.264	(0.280)	0.194
56	4.67	2.30	0.479	0.264	(0.293)	0.214
57	4.75	2.40	0.500	0.264	(0.306)	0.235
58	4.83	2.40	0.500	0.264	(0.306)	0.235
59	4.92	2.50	0.520	0.264	(0.319)	0.256
60	5.00	2.60	0.541	0.264	(0.331)	0.277
61	5.08	3.10	0.645	0.264	(0.395)	0.381
62	5.17	3.60	0.749	0.264	(0.459)	0.485
63	5.25	3.90	0.812	0.264	(0.497)	0.547
64	5.33	4.20	0.874	0.264	(0.535)	0.610
65	5.42	4.70	0.978	0.264	(0.599)	0.714
66	5.50	5.60	1.166	0.264	(0.713)	0.901
67	5.58	1.90	0.396	(0.264)	0.242	0.153
68	5.67	0.90	0.187	(0.264)	0.115	0.073
69	5.75	0.60	0.125	(0.264)	0.076	0.048
70	5.83	0.50	0.104	(0.264)	0.064	0.040
71	5.92	0.30	0.062	(0.264)	0.038	0.024
72	6.00	0.20	0.042	(0.264)	0.025	0.016

(Loss Rate Not Used)

Sum = 100.0 Sum = 9.9

Flood volume = Effective rainfall 0.83(In)
 times area 1.6(Ac.)/[(In)/(Ft.)] = 0.1(Ac.Ft)
 Total soil loss = 0.91(In)
 Total soil loss = 0.123(Ac.Ft)
 Total rainfall = 1.73(In)
 Flood volume = 4902.6 Cubic Feet
 Total soil loss = 5362.1 Cubic Feet

 Peak flow rate of this hydrograph = 1.382(CFS)

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6 - H O U R S T O R M
 R u n o f f H y d r o g r a p h

 Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0003	0.05	Q				
0+10	0.0008	0.08	Q				
0+15	0.0014	0.08	Q				
0+20	0.0019	0.08	Q				
0+25	0.0025	0.08	Q				
0+30	0.0031	0.09	QV				
0+35	0.0037	0.09	QV				
0+40	0.0044	0.09	QV				
0+45	0.0050	0.09	QV				
0+50	0.0056	0.09	Q V				
0+55	0.0063	0.09	Q V				
1+ 0	0.0070	0.10	Q V				
1+ 5	0.0077	0.11	Q V				
1+10	0.0085	0.11	Q V				
1+15	0.0092	0.11	Q V				
1+20	0.0099	0.11	Q V				
1+25	0.0106	0.11	Q V				
1+30	0.0114	0.11	Q V				
1+35	0.0121	0.11	Q V				
1+40	0.0128	0.11	Q V				
1+45	0.0136	0.11	Q V				
1+50	0.0143	0.11	Q V				
1+55	0.0150	0.11	Q V				
2+ 0	0.0158	0.12	Q V				
2+ 5	0.0166	0.11	Q V				
2+10	0.0174	0.12	Q V				
2+15	0.0182	0.12	Q V				

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

- **Area 'A' – 10 Year 24 Hour Pre-Development Condition – Unit Hydrograph**

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
 Study date 07/23/20 File: exl02410.out

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Riverside County Synthetic Unit Hydrology Method
 RCFC & WCD Manual date - April 1978

Program License Serial Number 6407

English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

English Units used in output format

FARM MARKET EXPANSION
 EXISTING CONDITION UNIT HYDROGRAPH - 10 YEAR 24 HOUR STORM
 WMB & ASSOCIATES, JULY 2020
 BY: BRIAN LOWELL, PE

Drainage Area = 1.63(Ac.) = 0.003 Sq. Mi.
 Drainage Area for Depth-Area Areal Adjustment = 1.63(Ac.) = 0.003 Sq. Mi.
 Length along longest watercourse = 355.00(Ft.)
 Length along longest watercourse measured to centroid = 169.00(Ft.)
 Length along longest watercourse = 0.067 Mi.
 Length along longest watercourse measured to centroid = 0.032 Mi.
 Difference in elevation = 7.90(Ft.)
 Slope along watercourse = 117.4986 Ft./Mi.
 Average Manning's 'N' = 0.020
 Lag time = 0.019 Hr.
 Lag time = 1.13 Min.
 25% of lag time = 0.28 Min.
 40% of lag time = 0.45 Min.
 Unit time = 5.00 Min.
 Duration of storm = 24 Hour(s)
 User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
1.63	1.80	2.93

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
1.63	4.50	7.33

STORM EVENT (YEAR) = 10.00
 Area Averaged 2-Year Rainfall = 1.800(In)
 Area Averaged 100-Year Rainfall = 4.500(In)

Point rain (area averaged) = 2.911(In)
 Areal adjustment factor = 100.00 %
 Adjusted average point rain = 2.911(In)

Sub-Area Data:
 Area(Ac.) Runoff Index Impervious %
 1.630 67.30 0.360
 Total Area Entered = 1.63(Ac.)

RI RI Infil. Rate Impervious Adj. Infil. Rate Area% F

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

AMC2	AMC-2	(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
67.3	67.3	0.391	0.360	0.264	1.000	0.264
						Sum (F) = 0.264

Area averaged mean soil loss (F) (In/Hr) = 0.264
 Minimum soil loss rate ((In/Hr)) = 0.132
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.612

Unit Hydrograph
 VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	442.998	67.832
2	0.167	885.996	32.168
		Sum = 100.000	Sum= 1.643

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr)		Effective (In/Hr)
				Max	Low	
1	0.08	0.07	0.023	(0.469)	0.014	0.009
2	0.17	0.07	0.023	(0.467)	0.014	0.009
3	0.25	0.07	0.023	(0.465)	0.014	0.009
4	0.33	0.10	0.035	(0.463)	0.021	0.014
5	0.42	0.10	0.035	(0.462)	0.021	0.014
6	0.50	0.10	0.035	(0.460)	0.021	0.014
7	0.58	0.10	0.035	(0.458)	0.021	0.014
8	0.67	0.10	0.035	(0.456)	0.021	0.014
9	0.75	0.10	0.035	(0.454)	0.021	0.014
10	0.83	0.13	0.047	(0.453)	0.029	0.018
11	0.92	0.13	0.047	(0.451)	0.029	0.018
12	1.00	0.13	0.047	(0.449)	0.029	0.018
13	1.08	0.10	0.035	(0.447)	0.021	0.014
14	1.17	0.10	0.035	(0.445)	0.021	0.014
15	1.25	0.10	0.035	(0.444)	0.021	0.014
16	1.33	0.10	0.035	(0.442)	0.021	0.014
17	1.42	0.10	0.035	(0.440)	0.021	0.014
18	1.50	0.10	0.035	(0.438)	0.021	0.014
19	1.58	0.10	0.035	(0.437)	0.021	0.014
20	1.67	0.10	0.035	(0.435)	0.021	0.014
21	1.75	0.10	0.035	(0.433)	0.021	0.014
22	1.83	0.13	0.047	(0.431)	0.029	0.018
23	1.92	0.13	0.047	(0.430)	0.029	0.018
24	2.00	0.13	0.047	(0.428)	0.029	0.018
25	2.08	0.13	0.047	(0.426)	0.029	0.018
26	2.17	0.13	0.047	(0.424)	0.029	0.018
27	2.25	0.13	0.047	(0.423)	0.029	0.018
28	2.33	0.13	0.047	(0.421)	0.029	0.018
29	2.42	0.13	0.047	(0.419)	0.029	0.018
30	2.50	0.13	0.047	(0.418)	0.029	0.018
31	2.58	0.17	0.058	(0.416)	0.036	0.023
32	2.67	0.17	0.058	(0.414)	0.036	0.023
33	2.75	0.17	0.058	(0.412)	0.036	0.023
34	2.83	0.17	0.058	(0.411)	0.036	0.023
35	2.92	0.17	0.058	(0.409)	0.036	0.023
36	3.00	0.17	0.058	(0.407)	0.036	0.023
37	3.08	0.17	0.058	(0.406)	0.036	0.023
38	3.17	0.17	0.058	(0.404)	0.036	0.023
39	3.25	0.17	0.058	(0.402)	0.036	0.023
40	3.33	0.17	0.058	(0.401)	0.036	0.023
41	3.42	0.17	0.058	(0.399)	0.036	0.023
42	3.50	0.17	0.058	(0.397)	0.036	0.023
43	3.58	0.17	0.058	(0.396)	0.036	0.023
44	3.67	0.17	0.058	(0.394)	0.036	0.023
45	3.75	0.17	0.058	(0.392)	0.036	0.023
46	3.83	0.20	0.070	(0.391)	0.043	0.027

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

47	3.92	0.20	0.070	(0.389)	0.043	0.027
48	4.00	0.20	0.070	(0.387)	0.043	0.027
49	4.08	0.20	0.070	(0.386)	0.043	0.027
50	4.17	0.20	0.070	(0.384)	0.043	0.027
51	4.25	0.20	0.070	(0.382)	0.043	0.027
52	4.33	0.23	0.082	(0.381)	0.050	0.032
53	4.42	0.23	0.082	(0.379)	0.050	0.032
54	4.50	0.23	0.082	(0.378)	0.050	0.032
55	4.58	0.23	0.082	(0.376)	0.050	0.032
56	4.67	0.23	0.082	(0.374)	0.050	0.032
57	4.75	0.23	0.082	(0.373)	0.050	0.032
58	4.83	0.27	0.093	(0.371)	0.057	0.036
59	4.92	0.27	0.093	(0.370)	0.057	0.036
60	5.00	0.27	0.093	(0.368)	0.057	0.036
61	5.08	0.20	0.070	(0.366)	0.043	0.027
62	5.17	0.20	0.070	(0.365)	0.043	0.027
63	5.25	0.20	0.070	(0.363)	0.043	0.027
64	5.33	0.23	0.082	(0.362)	0.050	0.032
65	5.42	0.23	0.082	(0.360)	0.050	0.032
66	5.50	0.23	0.082	(0.358)	0.050	0.032
67	5.58	0.27	0.093	(0.357)	0.057	0.036
68	5.67	0.27	0.093	(0.355)	0.057	0.036
69	5.75	0.27	0.093	(0.354)	0.057	0.036
70	5.83	0.27	0.093	(0.352)	0.057	0.036
71	5.92	0.27	0.093	(0.351)	0.057	0.036
72	6.00	0.27	0.093	(0.349)	0.057	0.036
73	6.08	0.30	0.105	(0.347)	0.064	0.041
74	6.17	0.30	0.105	(0.346)	0.064	0.041
75	6.25	0.30	0.105	(0.344)	0.064	0.041
76	6.33	0.30	0.105	(0.343)	0.064	0.041
77	6.42	0.30	0.105	(0.341)	0.064	0.041
78	6.50	0.30	0.105	(0.340)	0.064	0.041
79	6.58	0.33	0.116	(0.338)	0.071	0.045
80	6.67	0.33	0.116	(0.337)	0.071	0.045
81	6.75	0.33	0.116	(0.335)	0.071	0.045
82	6.83	0.33	0.116	(0.334)	0.071	0.045
83	6.92	0.33	0.116	(0.332)	0.071	0.045
84	7.00	0.33	0.116	(0.331)	0.071	0.045
85	7.08	0.33	0.116	(0.329)	0.071	0.045
86	7.17	0.33	0.116	(0.328)	0.071	0.045
87	7.25	0.33	0.116	(0.326)	0.071	0.045
88	7.33	0.37	0.128	(0.325)	0.078	0.050
89	7.42	0.37	0.128	(0.323)	0.078	0.050
90	7.50	0.37	0.128	(0.322)	0.078	0.050
91	7.58	0.40	0.140	(0.320)	0.086	0.054
92	7.67	0.40	0.140	(0.319)	0.086	0.054
93	7.75	0.40	0.140	(0.317)	0.086	0.054
94	7.83	0.43	0.151	(0.316)	0.093	0.059
95	7.92	0.43	0.151	(0.314)	0.093	0.059
96	8.00	0.43	0.151	(0.313)	0.093	0.059
97	8.08	0.50	0.175	(0.311)	0.107	0.068
98	8.17	0.50	0.175	(0.310)	0.107	0.068
99	8.25	0.50	0.175	(0.309)	0.107	0.068
100	8.33	0.50	0.175	(0.307)	0.107	0.068
101	8.42	0.50	0.175	(0.306)	0.107	0.068
102	8.50	0.50	0.175	(0.304)	0.107	0.068
103	8.58	0.53	0.186	(0.303)	0.114	0.072
104	8.67	0.53	0.186	(0.301)	0.114	0.072
105	8.75	0.53	0.186	(0.300)	0.114	0.072
106	8.83	0.57	0.198	(0.299)	0.121	0.077
107	8.92	0.57	0.198	(0.297)	0.121	0.077
108	9.00	0.57	0.198	(0.296)	0.121	0.077
109	9.08	0.63	0.221	(0.294)	0.135	0.086
110	9.17	0.63	0.221	(0.293)	0.135	0.086
111	9.25	0.63	0.221	(0.292)	0.135	0.086
112	9.33	0.67	0.233	(0.290)	0.143	0.090
113	9.42	0.67	0.233	(0.289)	0.143	0.090
114	9.50	0.67	0.233	(0.287)	0.143	0.090
115	9.58	0.70	0.245	(0.286)	0.150	0.095
116	9.67	0.70	0.245	(0.285)	0.150	0.095
117	9.75	0.70	0.245	(0.283)	0.150	0.095
118	9.83	0.73	0.256	(0.282)	0.157	0.099
119	9.92	0.73	0.256	(0.281)	0.157	0.099
120	10.00	0.73	0.256	(0.279)	0.157	0.099

121	10.08	0.50	0.175	(0.278)	0.107	0.068
122	10.17	0.50	0.175	(0.277)	0.107	0.068
123	10.25	0.50	0.175	(0.275)	0.107	0.068
124	10.33	0.50	0.175	(0.274)	0.107	0.068
125	10.42	0.50	0.175	(0.273)	0.107	0.068
126	10.50	0.50	0.175	(0.271)	0.107	0.068
127	10.58	0.67	0.233	(0.270)	0.143	0.090
128	10.67	0.67	0.233	(0.269)	0.143	0.090
129	10.75	0.67	0.233	(0.267)	0.143	0.090
130	10.83	0.67	0.233	(0.266)	0.143	0.090
131	10.92	0.67	0.233	(0.265)	0.143	0.090
132	11.00	0.67	0.233	(0.263)	0.143	0.090
133	11.08	0.63	0.221	(0.262)	0.135	0.086
134	11.17	0.63	0.221	(0.261)	0.135	0.086
135	11.25	0.63	0.221	(0.259)	0.135	0.086
136	11.33	0.63	0.221	(0.258)	0.135	0.086
137	11.42	0.63	0.221	(0.257)	0.135	0.086
138	11.50	0.63	0.221	(0.256)	0.135	0.086
139	11.58	0.57	0.198	(0.254)	0.121	0.077
140	11.67	0.57	0.198	(0.253)	0.121	0.077
141	11.75	0.57	0.198	(0.252)	0.121	0.077
142	11.83	0.60	0.210	(0.251)	0.128	0.081
143	11.92	0.60	0.210	(0.249)	0.128	0.081
144	12.00	0.60	0.210	(0.248)	0.128	0.081
145	12.08	0.83	0.291	(0.247)	0.178	0.113
146	12.17	0.83	0.291	(0.246)	0.178	0.113
147	12.25	0.83	0.291	(0.244)	0.178	0.113
148	12.33	0.87	0.303	(0.243)	0.185	0.117
149	12.42	0.87	0.303	(0.242)	0.185	0.117
150	12.50	0.87	0.303	(0.241)	0.185	0.117
151	12.58	0.93	0.326	(0.239)	0.200	0.126
152	12.67	0.93	0.326	(0.238)	0.200	0.126
153	12.75	0.93	0.326	(0.237)	0.200	0.126
154	12.83	0.97	0.338	(0.236)	0.207	0.131
155	12.92	0.97	0.338	(0.235)	0.207	0.131
156	13.00	0.97	0.338	(0.234)	0.207	0.131
157	13.08	1.13	0.396	0.232 (0.242)		0.164
158	13.17	1.13	0.396	0.231 (0.242)		0.165
159	13.25	1.13	0.396	0.230 (0.242)		0.166
160	13.33	1.13	0.396	0.229 (0.242)		0.167
161	13.42	1.13	0.396	0.228 (0.242)		0.168
162	13.50	1.13	0.396	0.226 (0.242)		0.169
163	13.58	0.77	0.268	(0.225)	0.164	0.104
164	13.67	0.77	0.268	(0.224)	0.164	0.104
165	13.75	0.77	0.268	(0.223)	0.164	0.104
166	13.83	0.77	0.268	(0.222)	0.164	0.104
167	13.92	0.77	0.268	(0.221)	0.164	0.104
168	14.00	0.77	0.268	(0.220)	0.164	0.104
169	14.08	0.90	0.314	(0.219)	0.192	0.122
170	14.17	0.90	0.314	(0.217)	0.192	0.122
171	14.25	0.90	0.314	(0.216)	0.192	0.122
172	14.33	0.87	0.303	(0.215)	0.185	0.117
173	14.42	0.87	0.303	(0.214)	0.185	0.117
174	14.50	0.87	0.303	(0.213)	0.185	0.117
175	14.58	0.87	0.303	(0.212)	0.185	0.117
176	14.67	0.87	0.303	(0.211)	0.185	0.117
177	14.75	0.87	0.303	(0.210)	0.185	0.117
178	14.83	0.83	0.291	(0.209)	0.178	0.113
179	14.92	0.83	0.291	(0.208)	0.178	0.113
180	15.00	0.83	0.291	(0.207)	0.178	0.113
181	15.08	0.80	0.279	(0.205)	0.171	0.108
182	15.17	0.80	0.279	(0.204)	0.171	0.108
183	15.25	0.80	0.279	(0.203)	0.171	0.108
184	15.33	0.77	0.268	(0.202)	0.164	0.104
185	15.42	0.77	0.268	(0.201)	0.164	0.104
186	15.50	0.77	0.268	(0.200)	0.164	0.104
187	15.58	0.63	0.221	(0.199)	0.135	0.086
188	15.67	0.63	0.221	(0.198)	0.135	0.086
189	15.75	0.63	0.221	(0.197)	0.135	0.086
190	15.83	0.63	0.221	(0.196)	0.135	0.086
191	15.92	0.63	0.221	(0.195)	0.135	0.086
192	16.00	0.63	0.221	(0.194)	0.135	0.086
193	16.08	0.13	0.047	(0.193)	0.029	0.018
194	16.17	0.13	0.047	(0.192)	0.029	0.018

195	16.25	0.13	0.047	(0.191)	0.029	0.018
196	16.33	0.13	0.047	(0.190)	0.029	0.018
197	16.42	0.13	0.047	(0.189)	0.029	0.018
198	16.50	0.13	0.047	(0.188)	0.029	0.018
199	16.58	0.10	0.035	(0.187)	0.021	0.014
200	16.67	0.10	0.035	(0.186)	0.021	0.014
201	16.75	0.10	0.035	(0.185)	0.021	0.014
202	16.83	0.10	0.035	(0.185)	0.021	0.014
203	16.92	0.10	0.035	(0.184)	0.021	0.014
204	17.00	0.10	0.035	(0.183)	0.021	0.014
205	17.08	0.17	0.058	(0.182)	0.036	0.023
206	17.17	0.17	0.058	(0.181)	0.036	0.023
207	17.25	0.17	0.058	(0.180)	0.036	0.023
208	17.33	0.17	0.058	(0.179)	0.036	0.023
209	17.42	0.17	0.058	(0.178)	0.036	0.023
210	17.50	0.17	0.058	(0.177)	0.036	0.023
211	17.58	0.17	0.058	(0.176)	0.036	0.023
212	17.67	0.17	0.058	(0.175)	0.036	0.023
213	17.75	0.17	0.058	(0.175)	0.036	0.023
214	17.83	0.13	0.047	(0.174)	0.029	0.018
215	17.92	0.13	0.047	(0.173)	0.029	0.018
216	18.00	0.13	0.047	(0.172)	0.029	0.018
217	18.08	0.13	0.047	(0.171)	0.029	0.018
218	18.17	0.13	0.047	(0.170)	0.029	0.018
219	18.25	0.13	0.047	(0.169)	0.029	0.018
220	18.33	0.13	0.047	(0.169)	0.029	0.018
221	18.42	0.13	0.047	(0.168)	0.029	0.018
222	18.50	0.13	0.047	(0.167)	0.029	0.018
223	18.58	0.10	0.035	(0.166)	0.021	0.014
224	18.67	0.10	0.035	(0.165)	0.021	0.014
225	18.75	0.10	0.035	(0.165)	0.021	0.014
226	18.83	0.07	0.023	(0.164)	0.014	0.009
227	18.92	0.07	0.023	(0.163)	0.014	0.009
228	19.00	0.07	0.023	(0.162)	0.014	0.009
229	19.08	0.10	0.035	(0.161)	0.021	0.014
230	19.17	0.10	0.035	(0.161)	0.021	0.014
231	19.25	0.10	0.035	(0.160)	0.021	0.014
232	19.33	0.13	0.047	(0.159)	0.029	0.018
233	19.42	0.13	0.047	(0.159)	0.029	0.018
234	19.50	0.13	0.047	(0.158)	0.029	0.018
235	19.58	0.10	0.035	(0.157)	0.021	0.014
236	19.67	0.10	0.035	(0.156)	0.021	0.014
237	19.75	0.10	0.035	(0.156)	0.021	0.014
238	19.83	0.07	0.023	(0.155)	0.014	0.009
239	19.92	0.07	0.023	(0.154)	0.014	0.009
240	20.00	0.07	0.023	(0.154)	0.014	0.009
241	20.08	0.10	0.035	(0.153)	0.021	0.014
242	20.17	0.10	0.035	(0.152)	0.021	0.014
243	20.25	0.10	0.035	(0.152)	0.021	0.014
244	20.33	0.10	0.035	(0.151)	0.021	0.014
245	20.42	0.10	0.035	(0.150)	0.021	0.014
246	20.50	0.10	0.035	(0.150)	0.021	0.014
247	20.58	0.10	0.035	(0.149)	0.021	0.014
248	20.67	0.10	0.035	(0.148)	0.021	0.014
249	20.75	0.10	0.035	(0.148)	0.021	0.014
250	20.83	0.07	0.023	(0.147)	0.014	0.009
251	20.92	0.07	0.023	(0.147)	0.014	0.009
252	21.00	0.07	0.023	(0.146)	0.014	0.009
253	21.08	0.10	0.035	(0.145)	0.021	0.014
254	21.17	0.10	0.035	(0.145)	0.021	0.014
255	21.25	0.10	0.035	(0.144)	0.021	0.014
256	21.33	0.07	0.023	(0.144)	0.014	0.009
257	21.42	0.07	0.023	(0.143)	0.014	0.009
258	21.50	0.07	0.023	(0.143)	0.014	0.009
259	21.58	0.10	0.035	(0.142)	0.021	0.014
260	21.67	0.10	0.035	(0.142)	0.021	0.014
261	21.75	0.10	0.035	(0.141)	0.021	0.014
262	21.83	0.07	0.023	(0.141)	0.014	0.009
263	21.92	0.07	0.023	(0.140)	0.014	0.009
264	22.00	0.07	0.023	(0.140)	0.014	0.009
265	22.08	0.10	0.035	(0.139)	0.021	0.014
266	22.17	0.10	0.035	(0.139)	0.021	0.014
267	22.25	0.10	0.035	(0.138)	0.021	0.014
268	22.33	0.07	0.023	(0.138)	0.014	0.009

269	22.42	0.07	0.023	(0.137)	0.014	0.009
270	22.50	0.07	0.023	(0.137)	0.014	0.009
271	22.58	0.07	0.023	(0.137)	0.014	0.009
272	22.67	0.07	0.023	(0.136)	0.014	0.009
273	22.75	0.07	0.023	(0.136)	0.014	0.009
274	22.83	0.07	0.023	(0.135)	0.014	0.009
275	22.92	0.07	0.023	(0.135)	0.014	0.009
276	23.00	0.07	0.023	(0.135)	0.014	0.009
277	23.08	0.07	0.023	(0.135)	0.014	0.009
278	23.17	0.07	0.023	(0.134)	0.014	0.009
279	23.25	0.07	0.023	(0.134)	0.014	0.009
280	23.33	0.07	0.023	(0.134)	0.014	0.009
281	23.42	0.07	0.023	(0.133)	0.014	0.009
282	23.50	0.07	0.023	(0.133)	0.014	0.009
283	23.58	0.07	0.023	(0.133)	0.014	0.009
284	23.67	0.07	0.023	(0.133)	0.014	0.009
285	23.75	0.07	0.023	(0.133)	0.014	0.009
286	23.83	0.07	0.023	(0.132)	0.014	0.009
287	23.92	0.07	0.023	(0.132)	0.014	0.009
288	24.00	0.07	0.023	(0.132)	0.014	0.009

(Loss Rate Not Used)

Sum = 100.0 Sum = 13.6

Flood volume = Effective rainfall 1.14(In)
times area 1.6(Ac.)/[(In)/(Ft.)] = 0.2(Ac.Ft)

Total soil loss = 1.77(In)
Total soil loss = 0.241(Ac.Ft)
Total rainfall = 2.91(In)
Flood volume = 6720.6 Cubic Feet
Total soil loss = 10502.3 Cubic Feet

Peak flow rate of this hydrograph = 0.278(CFS)

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24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0001	0.01	Q				
0+10	0.0002	0.01	Q				
0+15	0.0003	0.01	Q				
0+20	0.0004	0.02	Q				
0+25	0.0006	0.02	Q				
0+30	0.0007	0.02	Q				
0+35	0.0009	0.02	Q				
0+40	0.0010	0.02	Q				
0+45	0.0012	0.02	Q				
0+50	0.0014	0.03	Q				
0+55	0.0016	0.03	Q				
1+ 0	0.0018	0.03	Q				
1+ 5	0.0019	0.02	Q				
1+10	0.0021	0.02	Q				
1+15	0.0023	0.02	Q				
1+20	0.0024	0.02	Q				
1+25	0.0026	0.02	Q				
1+30	0.0027	0.02	Q				
1+35	0.0029	0.02	Q				
1+40	0.0030	0.02	Q				
1+45	0.0032	0.02	Q				
1+50	0.0034	0.03	Q				
1+55	0.0036	0.03	Q				
2+ 0	0.0038	0.03	Q				
2+ 5	0.0040	0.03	QV				
2+10	0.0042	0.03	QV				
2+15	0.0044	0.03	QV				
2+20	0.0046	0.03	QV				
2+25	0.0048	0.03	QV				
2+30	0.0050	0.03	QV				
2+35	0.0052	0.03	QV				
2+40	0.0055	0.04	QV				
2+45	0.0057	0.04	QV				

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

2+50	0.0060	0.04	QV				
2+55	0.0063	0.04	QV				
3+ 0	0.0065	0.04	QV				
3+ 5	0.0068	0.04	QV				
3+10	0.0070	0.04	QV				
3+15	0.0073	0.04	QV				
3+20	0.0075	0.04	QV				
3+25	0.0078	0.04	Q V				
3+30	0.0080	0.04	Q V				
3+35	0.0083	0.04	Q V				
3+40	0.0086	0.04	Q V				
3+45	0.0088	0.04	Q V				
3+50	0.0091	0.04	Q V				
3+55	0.0094	0.04	Q V				
4+ 0	0.0097	0.04	Q V				
4+ 5	0.0100	0.04	Q V				
4+10	0.0103	0.04	Q V				
4+15	0.0106	0.04	Q V				
4+20	0.0110	0.05	Q V				
4+25	0.0113	0.05	Q V				
4+30	0.0117	0.05	Q V				
4+35	0.0121	0.05	Q V				
4+40	0.0124	0.05	Q V				
4+45	0.0128	0.05	Q V				
4+50	0.0132	0.06	Q V				
4+55	0.0136	0.06	Q V				
5+ 0	0.0140	0.06	Q V				
5+ 5	0.0143	0.05	Q V				
5+10	0.0146	0.04	Q V				
5+15	0.0149	0.04	Q V				
5+20	0.0153	0.05	Q V				
5+25	0.0156	0.05	Q V				
5+30	0.0160	0.05	Q V				
5+35	0.0164	0.06	Q V				
5+40	0.0168	0.06	Q V				
5+45	0.0172	0.06	Q V				
5+50	0.0176	0.06	Q V				
5+55	0.0180	0.06	Q V				
6+ 0	0.0184	0.06	Q V				
6+ 5	0.0189	0.06	Q V				
6+10	0.0193	0.07	Q V				
6+15	0.0198	0.07	Q V				
6+20	0.0203	0.07	Q V				
6+25	0.0207	0.07	Q V				
6+30	0.0212	0.07	Q V				
6+35	0.0217	0.07	Q V				
6+40	0.0222	0.07	Q V				
6+45	0.0227	0.07	Q V				
6+50	0.0232	0.07	Q V				
6+55	0.0237	0.07	Q V				
7+ 0	0.0242	0.07	Q V				
7+ 5	0.0247	0.07	Q V				
7+10	0.0253	0.07	Q V				
7+15	0.0258	0.07	Q V				
7+20	0.0263	0.08	Q V				
7+25	0.0269	0.08	Q V				
7+30	0.0274	0.08	Q V				
7+35	0.0280	0.09	Q V				
7+40	0.0286	0.09	Q V				
7+45	0.0293	0.09	Q V				
7+50	0.0299	0.09	Q V				
7+55	0.0306	0.10	Q V				
8+ 0	0.0312	0.10	Q V				
8+ 5	0.0320	0.11	Q V				
8+10	0.0327	0.11	Q V				
8+15	0.0335	0.11	Q V				
8+20	0.0343	0.11	Q V				
8+25	0.0350	0.11	Q V				
8+30	0.0358	0.11	Q V				
8+35	0.0366	0.12	Q V				
8+40	0.0374	0.12	Q V				
8+45	0.0382	0.12	Q V				
8+50	0.0391	0.12	Q V				
8+55	0.0400	0.13	Q V				

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

9+ 0	0.0408	0.13	Q	V						
9+ 5	0.0418	0.14	Q	V						
9+10	0.0427	0.14	Q	V						
9+15	0.0437	0.14	Q	V						
9+20	0.0447	0.15	Q	V						
9+25	0.0457	0.15	Q	V						
9+30	0.0468	0.15	Q	V						
9+35	0.0478	0.15	Q	V						
9+40	0.0489	0.16	Q	V						
9+45	0.0500	0.16	Q	V						
9+50	0.0511	0.16	Q	V						
9+55	0.0522	0.16	Q	V						
10+ 0	0.0533	0.16	Q	V						
10+ 5	0.0542	0.13	Q	V						
10+10	0.0550	0.11	Q	V						
10+15	0.0557	0.11	Q	V						
10+20	0.0565	0.11	Q	V						
10+25	0.0573	0.11	Q	V						
10+30	0.0580	0.11	Q	V						
10+35	0.0590	0.14	Q	V						
10+40	0.0600	0.15	Q	V						
10+45	0.0610	0.15	Q	V						
10+50	0.0621	0.15	Q	V						
10+55	0.0631	0.15	Q	V						
11+ 0	0.0641	0.15	Q	V						
11+ 5	0.0651	0.14	Q	V						
11+10	0.0661	0.14	Q	V						
11+15	0.0670	0.14	Q	V						
11+20	0.0680	0.14	Q	V						
11+25	0.0690	0.14	Q	V						
11+30	0.0699	0.14	Q	V						
11+35	0.0709	0.13	Q	V						
11+40	0.0717	0.13	Q	V						
11+45	0.0726	0.13	Q	V						
11+50	0.0735	0.13	Q	V						
11+55	0.0744	0.13	Q	V						
12+ 0	0.0753	0.13	Q	V						
12+ 5	0.0765	0.17	Q	V						
12+10	0.0778	0.19	Q	V						
12+15	0.0791	0.19	Q	V						
12+20	0.0804	0.19	Q	V						
12+25	0.0817	0.19	Q	V						
12+30	0.0830	0.19	Q	V						
12+35	0.0844	0.20	Q	V						
12+40	0.0859	0.21	Q	V						
12+45	0.0873	0.21	Q	V						
12+50	0.0888	0.21	Q	V						
12+55	0.0902	0.22	Q	V						
13+ 0	0.0917	0.22	Q	V						
13+ 5	0.0935	0.25	Q	V						
13+10	0.0953	0.27	Q	V						
13+15	0.0972	0.27	Q	V						
13+20	0.0991	0.27	Q	V						
13+25	0.1010	0.28	Q	V						
13+30	0.1029	0.28	Q	V						
13+35	0.1043	0.21	Q	V						
13+40	0.1055	0.17	Q	V						
13+45	0.1067	0.17	Q	V						
13+50	0.1078	0.17	Q	V						
13+55	0.1090	0.17	Q	V						
14+ 0	0.1102	0.17	Q	V						
14+ 5	0.1115	0.19	Q	V						
14+10	0.1129	0.20	Q	V						
14+15	0.1143	0.20	Q	V						
14+20	0.1156	0.20	Q	V						
14+25	0.1169	0.19	Q	V						
14+30	0.1183	0.19	Q	V						
14+35	0.1196	0.19	Q	V						
14+40	0.1209	0.19	Q	V						
14+45	0.1223	0.19	Q	V						
14+50	0.1235	0.19	Q	V						
14+55	0.1248	0.19	Q	V						
15+ 0	0.1261	0.19	Q	V						
15+ 5	0.1273	0.18	Q	V						

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

15+10	0.1286	0.18	Q				V	
15+15	0.1298	0.18	Q				V	
15+20	0.1310	0.17	Q				V	
15+25	0.1322	0.17	Q				V	
15+30	0.1333	0.17	Q				V	
15+35	0.1344	0.15	Q				V	
15+40	0.1354	0.14	Q				V	
15+45	0.1363	0.14	Q				V	
15+50	0.1373	0.14	Q				V	
15+55	0.1383	0.14	Q				V	
16+ 0	0.1392	0.14	Q				V	
16+ 5	0.1397	0.07	Q				V	
16+10	0.1399	0.03	Q				V	
16+15	0.1401	0.03	Q				V	
16+20	0.1403	0.03	Q				V	
16+25	0.1405	0.03	Q				V	
16+30	0.1407	0.03	Q				V	
16+35	0.1409	0.02	Q				V	
16+40	0.1410	0.02	Q				V	
16+45	0.1412	0.02	Q				V	
16+50	0.1413	0.02	Q				V	
16+55	0.1415	0.02	Q				V	
17+ 0	0.1417	0.02	Q				V	
17+ 5	0.1419	0.03	Q				V	
17+10	0.1421	0.04	Q				V	
17+15	0.1424	0.04	Q				V	
17+20	0.1426	0.04	Q				V	
17+25	0.1429	0.04	Q				V	
17+30	0.1432	0.04	Q				V	
17+35	0.1434	0.04	Q				V	
17+40	0.1437	0.04	Q				V	
17+45	0.1439	0.04	Q				V	
17+50	0.1441	0.03	Q				V	
17+55	0.1443	0.03	Q				V	
18+ 0	0.1446	0.03	Q				V	
18+ 5	0.1448	0.03	Q				V	
18+10	0.1450	0.03	Q				V	
18+15	0.1452	0.03	Q				V	
18+20	0.1454	0.03	Q				V	
18+25	0.1456	0.03	Q				V	
18+30	0.1458	0.03	Q				V	
18+35	0.1459	0.02	Q				V	
18+40	0.1461	0.02	Q				V	
18+45	0.1463	0.02	Q				V	
18+50	0.1464	0.02	Q				V	
18+55	0.1465	0.01	Q				V	
19+ 0	0.1466	0.01	Q				V	
19+ 5	0.1467	0.02	Q				V	
19+10	0.1469	0.02	Q				V	
19+15	0.1470	0.02	Q				V	
19+20	0.1472	0.03	Q				V	
19+25	0.1474	0.03	Q				V	
19+30	0.1476	0.03	Q				V	
19+35	0.1478	0.02	Q				V	
19+40	0.1479	0.02	Q				V	
19+45	0.1481	0.02	Q				V	
19+50	0.1482	0.02	Q				V	
19+55	0.1483	0.01	Q				V	
20+ 0	0.1484	0.01	Q				V	
20+ 5	0.1486	0.02	Q				V	
20+10	0.1487	0.02	Q				V	
20+15	0.1489	0.02	Q				V	
20+20	0.1490	0.02	Q				V	
20+25	0.1492	0.02	Q				V	
20+30	0.1493	0.02	Q				V	
20+35	0.1495	0.02	Q				V	
20+40	0.1496	0.02	Q				V	
20+45	0.1498	0.02	Q				V	
20+50	0.1499	0.02	Q				V	
20+55	0.1500	0.01	Q				V	
21+ 0	0.1501	0.01	Q				V	
21+ 5	0.1502	0.02	Q				V	
21+10	0.1504	0.02	Q				V	
21+15	0.1506	0.02	Q				V	

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

21+20	0.1507	0.02	Q				V
21+25	0.1508	0.01	Q				V
21+30	0.1509	0.01	Q				V
21+35	0.1510	0.02	Q				V
21+40	0.1512	0.02	Q				V
21+45	0.1513	0.02	Q				V
21+50	0.1514	0.02	Q				V
21+55	0.1515	0.01	Q				V
22+ 0	0.1516	0.01	Q				V
22+ 5	0.1518	0.02	Q				V
22+10	0.1519	0.02	Q				V
22+15	0.1521	0.02	Q				V
22+20	0.1522	0.02	Q				V
22+25	0.1523	0.01	Q				V
22+30	0.1524	0.01	Q				V
22+35	0.1525	0.01	Q				V
22+40	0.1526	0.01	Q				V
22+45	0.1527	0.01	Q				V
22+50	0.1528	0.01	Q				V
22+55	0.1529	0.01	Q				V
23+ 0	0.1530	0.01	Q				V
23+ 5	0.1531	0.01	Q				V
23+10	0.1532	0.01	Q				V
23+15	0.1533	0.01	Q				V
23+20	0.1534	0.01	Q				V
23+25	0.1535	0.01	Q				V
23+30	0.1536	0.01	Q				V
23+35	0.1537	0.01	Q				V
23+40	0.1538	0.01	Q				V
23+45	0.1539	0.01	Q				V
23+50	0.1540	0.01	Q				V
23+55	0.1541	0.01	Q				V
24+ 0	0.1543	0.01	Q				V
24+ 5	0.1543	0.00	Q				V

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

- **Area 'A' – 100 Year 1 Hour Pre-Development Condition – Unit Hydrograph**

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
 Study date 07/23/20 File: exl001100.out

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Riverside County Synthetic Unit Hydrology Method
 RCFC & WCD Manual date - April 1978

Program License Serial Number 6407

 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

English Units used in output format

 FARM MARKET EXPANSION
 EXISTING CONDITION UNIT HYDROGRAPH - 100 YEAR 1 HOUR STORM
 WMB & ASSOCIATES, JULY 2020
 BY: BRIAN LOWELL, PE

 Drainage Area = 1.63(Ac.) = 0.003 Sq. Mi.
 Drainage Area for Depth-Area Areal Adjustment = 1.63(Ac.) = 0.003 Sq. Mi.
 Length along longest watercourse = 355.00(Ft.)
 Length along longest watercourse measured to centroid = 169.00(Ft.)
 Length along longest watercourse = 0.067 Mi.
 Length along longest watercourse measured to centroid = 0.032 Mi.
 Difference in elevation = 7.90(Ft.)
 Slope along watercourse = 117.4986 Ft./Mi.
 Average Manning's 'N' = 0.020
 Lag time = 0.019 Hr.
 Lag time = 1.13 Min.
 25% of lag time = 0.28 Min.
 40% of lag time = 0.45 Min.
 Unit time = 5.00 Min.
 Duration of storm = 1 Hour(s)
 User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
1.63	0.50	0.81

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
1.63	1.20	1.96

STORM EVENT (YEAR) = 100.00
 Area Averaged 2-Year Rainfall = 0.500(In)
 Area Averaged 100-Year Rainfall = 1.200(In)

Point rain (area averaged) = 1.200(In)
 Areal adjustment factor = 100.00 %
 Adjusted average point rain = 1.200(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
1.630	67.30	0.360
Total Area Entered = 1.63(Ac.)		

RI	RI	Infil. Rate	Impervious	Adj. Infil. Rate	Area%	F
AMC2	AMC-3	(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
67.3	83.4	0.205	0.360	0.139	1.000	0.139
Sum (F) =						0.139

Area averaged mean soil loss (F) (In/Hr) = 0.139

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Minimum soil loss rate ((In/Hr)) = 0.069
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.612

Slope of intensity-duration curve for a 1 hour storm = 0.5000

Unit Hydrograph
 VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	442.998	67.832
2	0.167	885.996	32.168
		Sum = 100.000	Sum= 1.643

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max Low	Effective (In/Hr)
1	0.08	4.20	0.139 (0.370)	0.466
2	0.17	4.30	0.139 (0.379)	0.480
3	0.25	5.00	0.139 (0.441)	0.581
4	0.33	5.00	0.139 (0.441)	0.581
5	0.42	5.80	0.139 (0.511)	0.696
6	0.50	6.50	0.139 (0.573)	0.797
7	0.58	7.40	0.139 (0.652)	0.927
8	0.67	8.60	0.139 (0.758)	1.099
9	0.75	12.30	0.139 (1.084)	1.632
10	0.83	29.10	0.139 (2.564)	4.051
11	0.92	6.80	0.139 (0.599)	0.840
12	1.00	5.00	0.139 (0.441)	0.581
Sum =	100.0	(Loss Rate Not Used)		Sum = 12.7

Flood volume = Effective rainfall 1.06(In) times area 1.6(Ac.)/[(In)/(Ft.)] = 0.1(Ac.Ft)
 Total soil loss = 0.14(In)
 Total soil loss = 0.019(Ac.Ft)
 Total rainfall = 1.20(In)
 Flood volume = 6278.3 Cubic Feet
 Total soil loss = 821.8 Cubic Feet

Peak flow rate of this hydrograph = 5.380(CFS)

1 - H O U R S T O R M
 R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0036	0.52	V Q				
0+10	0.0090	0.78	V Q				
0+15	0.0152	0.90	Q V				
0+20	0.0217	0.96	Q V				
0+25	0.0292	1.08	Q V				
0+30	0.0379	1.26	Q V				
0+35	0.0479	1.45	Q V				
0+40	0.0597	1.72	Q V				
0+45	0.0762	2.40	Q V				
0+50	0.1133	5.38	Q V				
0+55	0.1345	3.08	Q V				
1+ 0	0.1420	1.09	Q V				
1+ 5	0.1441	0.31	Q V				

- **Area 'A' – 100 Year 3 Hour Pre-Development Condition – Unit Hydrograph**

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
Study date 07/23/20 File: exl003100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6407

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

FARM MARKET EXPANSION
EXISTING CONDITION UNIT HYDROGRAPH - 100 YEAR 3 HOUR STORM
WMB & ASSOCIATES, JULY 2020
BY: BRIAN LOWELL, PE

Drainage Area = 1.63(Ac.) = 0.003 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 1.63(Ac.) = 0.003 Sq. Mi.
Length along longest watercourse = 355.00(Ft.)
Length along longest watercourse measured to centroid = 169.00(Ft.)
Length along longest watercourse = 0.067 Mi.
Length along longest watercourse measured to centroid = 0.032 Mi.
Difference in elevation = 7.90(Ft.)
Slope along watercourse = 117.4986 Ft./Mi.
Average Manning's 'N' = 0.020
Lag time = 0.019 Hr.
Lag time = 1.13 Min.
25% of lag time = 0.28 Min.
40% of lag time = 0.45 Min.
Unit time = 5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]
1.63 0.80 1.30

100 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]
1.63 1.80 2.93

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 0.800(In)
Area Averaged 100-Year Rainfall = 1.800(In)

Point rain (area averaged) = 1.800(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 1.800(In)

Sub-Area Data:
Area(Ac.) Runoff Index Impervious %
1.630 67.30 0.360
Total Area Entered = 1.63(Ac.)

RI RI Infil. Rate Impervious Adj. Infil. Rate Area% F

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

AMC2	AMC-3	(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
67.3	83.4	0.205	0.360	0.139	1.000	0.139
						Sum (F) = 0.139

Area averaged mean soil loss (F) (In/Hr) = 0.139
 Minimum soil loss rate ((In/Hr)) = 0.069
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.612

Unit Hydrograph
 VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	442.998	67.832
2	0.167	885.996	32.168
		Sum = 100.000	Sum= 1.643

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.281	0.139 (0.172)	0.142
2	0.17	1.30	0.281	0.139 (0.172)	0.142
3	0.25	1.10	0.238	0.139 (0.145)	0.099
4	0.33	1.50	0.324	0.139 (0.198)	0.185
5	0.42	1.50	0.324	0.139 (0.198)	0.185
6	0.50	1.80	0.389	0.139 (0.238)	0.250
7	0.58	1.50	0.324	0.139 (0.198)	0.185
8	0.67	1.80	0.389	0.139 (0.238)	0.250
9	0.75	1.80	0.389	0.139 (0.238)	0.250
10	0.83	1.50	0.324	0.139 (0.198)	0.185
11	0.92	1.60	0.346	0.139 (0.212)	0.207
12	1.00	1.80	0.389	0.139 (0.238)	0.250
13	1.08	2.20	0.475	0.139 (0.291)	0.336
14	1.17	2.20	0.475	0.139 (0.291)	0.336
15	1.25	2.20	0.475	0.139 (0.291)	0.336
16	1.33	2.00	0.432	0.139 (0.264)	0.293
17	1.42	2.60	0.562	0.139 (0.344)	0.423
18	1.50	2.70	0.583	0.139 (0.357)	0.444
19	1.58	2.40	0.518	0.139 (0.317)	0.379
20	1.67	2.70	0.583	0.139 (0.357)	0.444
21	1.75	3.30	0.713	0.139 (0.436)	0.574
22	1.83	3.10	0.670	0.139 (0.410)	0.531
23	1.92	2.90	0.626	0.139 (0.383)	0.487
24	2.00	3.00	0.648	0.139 (0.397)	0.509
25	2.08	3.10	0.670	0.139 (0.410)	0.531
26	2.17	4.20	0.907	0.139 (0.555)	0.768
27	2.25	5.00	1.080	0.139 (0.661)	0.941
28	2.33	3.50	0.756	0.139 (0.463)	0.617
29	2.42	6.80	1.469	0.139 (0.899)	1.330
30	2.50	7.30	1.577	0.139 (0.965)	1.438
31	2.58	8.20	1.771	0.139 (1.084)	1.632
32	2.67	5.90	1.274	0.139 (0.780)	1.135
33	2.75	2.00	0.432	0.139 (0.264)	0.293
34	2.83	1.80	0.389	0.139 (0.238)	0.250
35	2.92	1.80	0.389	0.139 (0.238)	0.250
36	3.00	0.60	0.130 (0.139)	0.079	0.050

Sum = 100.0 (Loss Rate Not Used) Sum = 16.7

Flood volume = Effective rainfall 1.39(In)
 times area 1.6(Ac.)/[In]/(Ft.)] = 0.2(Ac.Ft)
 Total soil loss = 0.41(In)
 Total soil loss = 0.056(Ac.Ft)
 Total rainfall = 1.80(In)
 Flood volume = 8214.2 Cubic Feet
 Total soil loss = 2436.1 Cubic Feet

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Peak flow rate of this hydrograph = 2.580(CFS)

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3 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0011	0.16	Q				
0+10	0.0027	0.23	Q				
0+15	0.0040	0.19	Q				
0+20	0.0058	0.26	Q				
0+25	0.0078	0.30	Q				
0+30	0.0104	0.38	Q				
0+35	0.0128	0.34	Q				
0+40	0.0154	0.38	Q	V			
0+45	0.0182	0.41	Q	V			
0+50	0.0205	0.34	Q	V			
0+55	0.0228	0.33	Q	V			
1+ 0	0.0255	0.39	Q	V			
1+ 5	0.0289	0.51	Q	V			
1+10	0.0328	0.55	Q	V			
1+15	0.0366	0.55	Q	V			
1+20	0.0400	0.50	Q	V			
1+25	0.0443	0.63	Q	V			
1+30	0.0493	0.72	Q	V			
1+35	0.0538	0.66	Q	V			
1+40	0.0586	0.70	Q	V			
1+45	0.0646	0.87	Q	V			
1+50	0.0708	0.90	Q	V			
1+55	0.0765	0.82	Q	V			
2+ 0	0.0822	0.83	Q	V			
2+ 5	0.0881	0.86	Q	V			
2+10	0.0959	1.14	Q	V			
2+15	0.1060	1.46	Q	V			
2+20	0.1141	1.19	Q	V			
2+25	0.1266	1.81	Q	V			
2+30	0.1425	2.31	Q	V			
2+35	0.1602	2.58	Q	V			
2+40	0.1749	2.13	Q	V			
2+45	0.1813	0.93	Q	V			
2+50	0.1843	0.43	Q	V			
2+55	0.1871	0.41	Q	V			
3+ 0	0.1884	0.19	Q	V			
3+ 5	0.1886	0.03	Q	V			

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

- **Area 'A' – 100 Year 6 Hour Pre-Development Condition – Unit Hydrograph**

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Unit Hydrograph Analysis

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Study date 07/23/20 File: exl006100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6407

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

FARM MARKET EXPANSION
EXISTING CONDITION UNIT HYDROGRAPH - 100 YEAR 6 HOUR STORM
WMB & ASSOCIATES, JULY 2020
BY: BRIAN LOWELL, PE

Drainage Area = 1.63(Ac.) = 0.003 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 1.63(Ac.) = 0.003 Sq. Mi.
Length along longest watercourse = 355.00(Ft.)
Length along longest watercourse measured to centroid = 169.00(Ft.)
Length along longest watercourse = 0.067 Mi.
Length along longest watercourse measured to centroid = 0.032 Mi.
Difference in elevation = 7.90(Ft.)
Slope along watercourse = 117.4986 Ft./Mi.
Average Manning's 'N' = 0.020
Lag time = 0.019 Hr.
Lag time = 1.13 Min.
25% of lag time = 0.28 Min.
40% of lag time = 0.45 Min.
Unit time = 5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]
1.63 1.20 1.96

100 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]
1.63 2.50 4.07

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 1.200(In)
Area Averaged 100-Year Rainfall = 2.500(In)

Point rain (area averaged) = 2.500(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 2.500(In)

Sub-Area Data:
Area(Ac.) Runoff Index Impervious %
1.630 67.30 0.360
Total Area Entered = 1.63(Ac.)

RI RI Infil. Rate Impervious Adj. Infil. Rate Area% F

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

AMC2	AMC-3	(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
67.3	83.4	0.205	0.360	0.139	1.000	0.139
						Sum (F) = 0.139

Area averaged mean soil loss (F) (In/Hr) = 0.139
 Minimum soil loss rate ((In/Hr)) = 0.069
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.612

Unit Hydrograph
 VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	442.998	67.832
2	0.167	885.996	32.168
		Sum = 100.000	Sum= 1.643

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr)		Effective (In/Hr)
			Max	Low	
1	0.08	0.150	(0.139)	0.092	0.058
2	0.17	0.180	(0.139)	0.110	0.070
3	0.25	0.180	(0.139)	0.110	0.070
4	0.33	0.180	(0.139)	0.110	0.070
5	0.42	0.180	(0.139)	0.110	0.070
6	0.50	0.210	(0.139)	0.129	0.081
7	0.58	0.210	(0.139)	0.129	0.081
8	0.67	0.210	(0.139)	0.129	0.081
9	0.75	0.210	(0.139)	0.129	0.081
10	0.83	0.210	(0.139)	0.129	0.081
11	0.92	0.210	(0.139)	0.129	0.081
12	1.00	0.240	0.139	(0.147)	0.101
13	1.08	0.240	0.139	(0.147)	0.101
14	1.17	0.240	0.139	(0.147)	0.101
15	1.25	0.240	0.139	(0.147)	0.101
16	1.33	0.240	0.139	(0.147)	0.101
17	1.42	0.240	0.139	(0.147)	0.101
18	1.50	0.240	0.139	(0.147)	0.101
19	1.58	0.240	0.139	(0.147)	0.101
20	1.67	0.240	0.139	(0.147)	0.101
21	1.75	0.240	0.139	(0.147)	0.101
22	1.83	0.240	0.139	(0.147)	0.101
23	1.92	0.240	0.139	(0.147)	0.101
24	2.00	0.270	0.139	(0.165)	0.131
25	2.08	0.240	0.139	(0.147)	0.101
26	2.17	0.270	0.139	(0.165)	0.131
27	2.25	0.270	0.139	(0.165)	0.131
28	2.33	0.270	0.139	(0.165)	0.131
29	2.42	0.270	0.139	(0.165)	0.131
30	2.50	0.270	0.139	(0.165)	0.131
31	2.58	0.270	0.139	(0.165)	0.131
32	2.67	0.270	0.139	(0.165)	0.131
33	2.75	0.300	0.139	(0.184)	0.161
34	2.83	0.300	0.139	(0.184)	0.161
35	2.92	0.300	0.139	(0.184)	0.161
36	3.00	0.300	0.139	(0.184)	0.161
37	3.08	0.300	0.139	(0.184)	0.161
38	3.17	0.330	0.139	(0.202)	0.191
39	3.25	0.330	0.139	(0.202)	0.191
40	3.33	0.330	0.139	(0.202)	0.191
41	3.42	0.360	0.139	(0.220)	0.221
42	3.50	0.390	0.139	(0.239)	0.251
43	3.58	0.420	0.139	(0.257)	0.281
44	3.67	0.420	0.139	(0.257)	0.281
45	3.75	0.450	0.139	(0.275)	0.311
46	3.83	0.450	0.139	(0.275)	0.311

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

47	3.92	1.60	0.480	0.139	(0.294)	0.341
48	4.00	1.60	0.480	0.139	(0.294)	0.341
49	4.08	1.70	0.510	0.139	(0.312)	0.371
50	4.17	1.80	0.540	0.139	(0.330)	0.401
51	4.25	1.90	0.570	0.139	(0.349)	0.431
52	4.33	2.00	0.600	0.139	(0.367)	0.461
53	4.42	2.10	0.630	0.139	(0.386)	0.491
54	4.50	2.10	0.630	0.139	(0.386)	0.491
55	4.58	2.20	0.660	0.139	(0.404)	0.521
56	4.67	2.30	0.690	0.139	(0.422)	0.551
57	4.75	2.40	0.720	0.139	(0.441)	0.581
58	4.83	2.40	0.720	0.139	(0.441)	0.581
59	4.92	2.50	0.750	0.139	(0.459)	0.611
60	5.00	2.60	0.780	0.139	(0.477)	0.641
61	5.08	3.10	0.930	0.139	(0.569)	0.791
62	5.17	3.60	1.080	0.139	(0.661)	0.941
63	5.25	3.90	1.170	0.139	(0.716)	1.031
64	5.33	4.20	1.260	0.139	(0.771)	1.121
65	5.42	4.70	1.410	0.139	(0.863)	1.271
66	5.50	5.60	1.680	0.139	(1.028)	1.541
67	5.58	1.90	0.570	0.139	(0.349)	0.431
68	5.67	0.90	0.270	0.139	(0.165)	0.131
69	5.75	0.60	0.180	(0.139)	0.110	0.070
70	5.83	0.50	0.150	(0.139)	0.092	0.058
71	5.92	0.30	0.090	(0.139)	0.055	0.035
72	6.00	0.20	0.060	(0.139)	0.037	0.023

(Loss Rate Not Used)

Sum = 100.0 Sum = 20.5

Flood volume = Effective rainfall 1.71(In)
 times area 1.6(Ac.)/[(In)/(Ft.)] = 0.2(Ac.Ft)
 Total soil loss = 0.79(In)
 Total soil loss = 0.108(Ac.Ft)
 Total rainfall = 2.50(In)
 Flood volume = 10100.9 Cubic Feet
 Total soil loss = 4691.3 Cubic Feet

 Peak flow rate of this hydrograph = 2.390(CFS)

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6 - H O U R S T O R M
 R u n o f f H y d r o g r a p h

 Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0004	0.06	Q				
0+10	0.0012	0.11	Q				
0+15	0.0020	0.11	Q				
0+20	0.0028	0.11	Q				
0+25	0.0036	0.11	Q				
0+30	0.0044	0.13	Q				
0+35	0.0054	0.13	Q				
0+40	0.0063	0.13	QV				
0+45	0.0072	0.13	QV				
0+50	0.0081	0.13	QV				
0+55	0.0091	0.13	QV				
1+ 0	0.0101	0.16	QV				
1+ 5	0.0113	0.17	QV				
1+10	0.0124	0.17	Q V				
1+15	0.0136	0.17	Q V				
1+20	0.0147	0.17	Q V				
1+25	0.0159	0.17	Q V				
1+30	0.0170	0.17	Q V				
1+35	0.0181	0.17	Q V				
1+40	0.0193	0.17	Q V				
1+45	0.0204	0.17	Q V				
1+50	0.0216	0.17	Q V				
1+55	0.0227	0.17	Q V				
2+ 0	0.0241	0.20	Q V				
2+ 5	0.0253	0.18	Q V				
2+10	0.0267	0.20	Q V				
2+15	0.0282	0.22	Q V				

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

- **Area 'A' – 100 Year 24 Hour Pre-Development Condition – Unit Hydrograph**

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
 Study date 07/23/20 File: ex10024100.out

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Riverside County Synthetic Unit Hydrology Method
 RCFC & WCD Manual date - April 1978

Program License Serial Number 6407

English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

English Units used in output format

FARM MARKET EXPANSION
 EXISTING CONDITION UNIT HYDROGRAPH - 100 YEAR 24 HOUR STORM
 WMB & ASSOCIATES, JULY 2020
 BY: BRIAN LOWELL, PE

Drainage Area = 1.63(Ac.) = 0.003 Sq. Mi.
 Drainage Area for Depth-Area Areal Adjustment = 1.63(Ac.) = 0.003 Sq. Mi.
 Length along longest watercourse = 355.00(Ft.)
 Length along longest watercourse measured to centroid = 169.00(Ft.)
 Length along longest watercourse = 0.067 Mi.
 Length along longest watercourse measured to centroid = 0.032 Mi.
 Difference in elevation = 7.90(Ft.)
 Slope along watercourse = 117.4986 Ft./Mi.
 Average Manning's 'N' = 0.020
 Lag time = 0.019 Hr.
 Lag time = 1.13 Min.
 25% of lag time = 0.28 Min.
 40% of lag time = 0.45 Min.
 Unit time = 5.00 Min.
 Duration of storm = 24 Hour(s)
 User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
1.63	1.80	2.93

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
1.63	4.50	7.33

STORM EVENT (YEAR) = 100.00
 Area Averaged 2-Year Rainfall = 1.800(In)
 Area Averaged 100-Year Rainfall = 4.500(In)

Point rain (area averaged) = 4.500(In)
 Areal adjustment factor = 100.00 %
 Adjusted average point rain = 4.500(In)

Sub-Area Data:
 Area(Ac.) Runoff Index Impervious %
 1.630 67.30 0.360
 Total Area Entered = 1.63(Ac.)

RI RI Infil. Rate Impervious Adj. Infil. Rate Area% F

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

AMC2	AMC-3	(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
67.3	83.4	0.205	0.360	0.139	1.000	0.139
						Sum (F) = 0.139

Area averaged mean soil loss (F) (In/Hr) = 0.139
 Minimum soil loss rate ((In/Hr)) = 0.069
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.612

Unit Hydrograph
 VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	442.998	67.832
2	0.167	885.996	32.168
		Sum = 100.000	Sum= 1.643

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr)		Effective (In/Hr)
				Max	Low	
1	0.08	0.07	0.036	(0.246)	0.022	0.014
2	0.17	0.07	0.036	(0.245)	0.022	0.014
3	0.25	0.07	0.036	(0.244)	0.022	0.014
4	0.33	0.10	0.054	(0.243)	0.033	0.021
5	0.42	0.10	0.054	(0.242)	0.033	0.021
6	0.50	0.10	0.054	(0.241)	0.033	0.021
7	0.58	0.10	0.054	(0.241)	0.033	0.021
8	0.67	0.10	0.054	(0.240)	0.033	0.021
9	0.75	0.10	0.054	(0.239)	0.033	0.021
10	0.83	0.13	0.072	(0.238)	0.044	0.028
11	0.92	0.13	0.072	(0.237)	0.044	0.028
12	1.00	0.13	0.072	(0.236)	0.044	0.028
13	1.08	0.10	0.054	(0.235)	0.033	0.021
14	1.17	0.10	0.054	(0.234)	0.033	0.021
15	1.25	0.10	0.054	(0.233)	0.033	0.021
16	1.33	0.10	0.054	(0.232)	0.033	0.021
17	1.42	0.10	0.054	(0.231)	0.033	0.021
18	1.50	0.10	0.054	(0.230)	0.033	0.021
19	1.58	0.10	0.054	(0.229)	0.033	0.021
20	1.67	0.10	0.054	(0.228)	0.033	0.021
21	1.75	0.10	0.054	(0.228)	0.033	0.021
22	1.83	0.13	0.072	(0.227)	0.044	0.028
23	1.92	0.13	0.072	(0.226)	0.044	0.028
24	2.00	0.13	0.072	(0.225)	0.044	0.028
25	2.08	0.13	0.072	(0.224)	0.044	0.028
26	2.17	0.13	0.072	(0.223)	0.044	0.028
27	2.25	0.13	0.072	(0.222)	0.044	0.028
28	2.33	0.13	0.072	(0.221)	0.044	0.028
29	2.42	0.13	0.072	(0.220)	0.044	0.028
30	2.50	0.13	0.072	(0.219)	0.044	0.028
31	2.58	0.17	0.090	(0.218)	0.055	0.035
32	2.67	0.17	0.090	(0.218)	0.055	0.035
33	2.75	0.17	0.090	(0.217)	0.055	0.035
34	2.83	0.17	0.090	(0.216)	0.055	0.035
35	2.92	0.17	0.090	(0.215)	0.055	0.035
36	3.00	0.17	0.090	(0.214)	0.055	0.035
37	3.08	0.17	0.090	(0.213)	0.055	0.035
38	3.17	0.17	0.090	(0.212)	0.055	0.035
39	3.25	0.17	0.090	(0.211)	0.055	0.035
40	3.33	0.17	0.090	(0.210)	0.055	0.035
41	3.42	0.17	0.090	(0.210)	0.055	0.035
42	3.50	0.17	0.090	(0.209)	0.055	0.035
43	3.58	0.17	0.090	(0.208)	0.055	0.035
44	3.67	0.17	0.090	(0.207)	0.055	0.035
45	3.75	0.17	0.090	(0.206)	0.055	0.035
46	3.83	0.20	0.108	(0.205)	0.066	0.042

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

47	3.92	0.20	0.108	(0.204)	0.066	0.042
48	4.00	0.20	0.108	(0.203)	0.066	0.042
49	4.08	0.20	0.108	(0.203)	0.066	0.042
50	4.17	0.20	0.108	(0.202)	0.066	0.042
51	4.25	0.20	0.108	(0.201)	0.066	0.042
52	4.33	0.23	0.126	(0.200)	0.077	0.049
53	4.42	0.23	0.126	(0.199)	0.077	0.049
54	4.50	0.23	0.126	(0.198)	0.077	0.049
55	4.58	0.23	0.126	(0.197)	0.077	0.049
56	4.67	0.23	0.126	(0.197)	0.077	0.049
57	4.75	0.23	0.126	(0.196)	0.077	0.049
58	4.83	0.27	0.144	(0.195)	0.088	0.056
59	4.92	0.27	0.144	(0.194)	0.088	0.056
60	5.00	0.27	0.144	(0.193)	0.088	0.056
61	5.08	0.20	0.108	(0.192)	0.066	0.042
62	5.17	0.20	0.108	(0.192)	0.066	0.042
63	5.25	0.20	0.108	(0.191)	0.066	0.042
64	5.33	0.23	0.126	(0.190)	0.077	0.049
65	5.42	0.23	0.126	(0.189)	0.077	0.049
66	5.50	0.23	0.126	(0.188)	0.077	0.049
67	5.58	0.27	0.144	(0.187)	0.088	0.056
68	5.67	0.27	0.144	(0.187)	0.088	0.056
69	5.75	0.27	0.144	(0.186)	0.088	0.056
70	5.83	0.27	0.144	(0.185)	0.088	0.056
71	5.92	0.27	0.144	(0.184)	0.088	0.056
72	6.00	0.27	0.144	(0.183)	0.088	0.056
73	6.08	0.30	0.162	(0.183)	0.099	0.063
74	6.17	0.30	0.162	(0.182)	0.099	0.063
75	6.25	0.30	0.162	(0.181)	0.099	0.063
76	6.33	0.30	0.162	(0.180)	0.099	0.063
77	6.42	0.30	0.162	(0.179)	0.099	0.063
78	6.50	0.30	0.162	(0.178)	0.099	0.063
79	6.58	0.33	0.180	(0.178)	0.110	0.070
80	6.67	0.33	0.180	(0.177)	0.110	0.070
81	6.75	0.33	0.180	(0.176)	0.110	0.070
82	6.83	0.33	0.180	(0.175)	0.110	0.070
83	6.92	0.33	0.180	(0.174)	0.110	0.070
84	7.00	0.33	0.180	(0.174)	0.110	0.070
85	7.08	0.33	0.180	(0.173)	0.110	0.070
86	7.17	0.33	0.180	(0.172)	0.110	0.070
87	7.25	0.33	0.180	(0.171)	0.110	0.070
88	7.33	0.37	0.198	(0.171)	0.121	0.077
89	7.42	0.37	0.198	(0.170)	0.121	0.077
90	7.50	0.37	0.198	(0.169)	0.121	0.077
91	7.58	0.40	0.216	(0.168)	0.132	0.084
92	7.67	0.40	0.216	(0.167)	0.132	0.084
93	7.75	0.40	0.216	(0.167)	0.132	0.084
94	7.83	0.43	0.234	(0.166)	0.143	0.091
95	7.92	0.43	0.234	(0.165)	0.143	0.091
96	8.00	0.43	0.234	(0.164)	0.143	0.091
97	8.08	0.50	0.270	0.164	(0.165)	0.106
98	8.17	0.50	0.270	0.163	(0.165)	0.107
99	8.25	0.50	0.270	0.162	(0.165)	0.108
100	8.33	0.50	0.270	0.161	(0.165)	0.109
101	8.42	0.50	0.270	0.161	(0.165)	0.109
102	8.50	0.50	0.270	0.160	(0.165)	0.110
103	8.58	0.53	0.288	0.159	(0.176)	0.129
104	8.67	0.53	0.288	0.158	(0.176)	0.130
105	8.75	0.53	0.288	0.158	(0.176)	0.130
106	8.83	0.57	0.306	0.157	(0.187)	0.149
107	8.92	0.57	0.306	0.156	(0.187)	0.150
108	9.00	0.57	0.306	0.155	(0.187)	0.151
109	9.08	0.63	0.342	0.155	(0.209)	0.187
110	9.17	0.63	0.342	0.154	(0.209)	0.188
111	9.25	0.63	0.342	0.153	(0.209)	0.189
112	9.33	0.67	0.360	0.152	(0.220)	0.208
113	9.42	0.67	0.360	0.152	(0.220)	0.208
114	9.50	0.67	0.360	0.151	(0.220)	0.209
115	9.58	0.70	0.378	0.150	(0.231)	0.228
116	9.67	0.70	0.378	0.150	(0.231)	0.228
117	9.75	0.70	0.378	0.149	(0.231)	0.229
118	9.83	0.73	0.396	0.148	(0.242)	0.248
119	9.92	0.73	0.396	0.147	(0.242)	0.249
120	10.00	0.73	0.396	0.147	(0.242)	0.249

121	10.08	0.50	0.270	0.146	(0.165)	0.124
122	10.17	0.50	0.270	0.145	(0.165)	0.125
123	10.25	0.50	0.270	0.145	(0.165)	0.125
124	10.33	0.50	0.270	0.144	(0.165)	0.126
125	10.42	0.50	0.270	0.143	(0.165)	0.127
126	10.50	0.50	0.270	0.142	(0.165)	0.128
127	10.58	0.67	0.360	0.142	(0.220)	0.218
128	10.67	0.67	0.360	0.141	(0.220)	0.219
129	10.75	0.67	0.360	0.140	(0.220)	0.220
130	10.83	0.67	0.360	0.140	(0.220)	0.220
131	10.92	0.67	0.360	0.139	(0.220)	0.221
132	11.00	0.67	0.360	0.138	(0.220)	0.222
133	11.08	0.63	0.342	0.138	(0.209)	0.204
134	11.17	0.63	0.342	0.137	(0.209)	0.205
135	11.25	0.63	0.342	0.136	(0.209)	0.206
136	11.33	0.63	0.342	0.136	(0.209)	0.206
137	11.42	0.63	0.342	0.135	(0.209)	0.207
138	11.50	0.63	0.342	0.134	(0.209)	0.208
139	11.58	0.57	0.306	0.134	(0.187)	0.172
140	11.67	0.57	0.306	0.133	(0.187)	0.173
141	11.75	0.57	0.306	0.132	(0.187)	0.174
142	11.83	0.60	0.324	0.132	(0.198)	0.192
143	11.92	0.60	0.324	0.131	(0.198)	0.193
144	12.00	0.60	0.324	0.130	(0.198)	0.194
145	12.08	0.83	0.450	0.130	(0.275)	0.320
146	12.17	0.83	0.450	0.129	(0.275)	0.321
147	12.25	0.83	0.450	0.128	(0.275)	0.322
148	12.33	0.87	0.468	0.128	(0.286)	0.340
149	12.42	0.87	0.468	0.127	(0.286)	0.341
150	12.50	0.87	0.468	0.126	(0.286)	0.342
151	12.58	0.93	0.504	0.126	(0.308)	0.378
152	12.67	0.93	0.504	0.125	(0.308)	0.379
153	12.75	0.93	0.504	0.125	(0.308)	0.379
154	12.83	0.97	0.522	0.124	(0.319)	0.398
155	12.92	0.97	0.522	0.123	(0.319)	0.399
156	13.00	0.97	0.522	0.123	(0.319)	0.399
157	13.08	1.13	0.612	0.122	(0.375)	0.490
158	13.17	1.13	0.612	0.121	(0.375)	0.491
159	13.25	1.13	0.612	0.121	(0.375)	0.491
160	13.33	1.13	0.612	0.120	(0.375)	0.492
161	13.42	1.13	0.612	0.120	(0.375)	0.492
162	13.50	1.13	0.612	0.119	(0.375)	0.493
163	13.58	0.77	0.414	0.118	(0.253)	0.296
164	13.67	0.77	0.414	0.118	(0.253)	0.296
165	13.75	0.77	0.414	0.117	(0.253)	0.297
166	13.83	0.77	0.414	0.117	(0.253)	0.297
167	13.92	0.77	0.414	0.116	(0.253)	0.298
168	14.00	0.77	0.414	0.115	(0.253)	0.299
169	14.08	0.90	0.486	0.115	(0.297)	0.371
170	14.17	0.90	0.486	0.114	(0.297)	0.372
171	14.25	0.90	0.486	0.114	(0.297)	0.372
172	14.33	0.87	0.468	0.113	(0.286)	0.355
173	14.42	0.87	0.468	0.112	(0.286)	0.356
174	14.50	0.87	0.468	0.112	(0.286)	0.356
175	14.58	0.87	0.468	0.111	(0.286)	0.357
176	14.67	0.87	0.468	0.111	(0.286)	0.357
177	14.75	0.87	0.468	0.110	(0.286)	0.358
178	14.83	0.83	0.450	0.110	(0.275)	0.340
179	14.92	0.83	0.450	0.109	(0.275)	0.341
180	15.00	0.83	0.450	0.108	(0.275)	0.342
181	15.08	0.80	0.432	0.108	(0.264)	0.324
182	15.17	0.80	0.432	0.107	(0.264)	0.325
183	15.25	0.80	0.432	0.107	(0.264)	0.325
184	15.33	0.77	0.414	0.106	(0.253)	0.308
185	15.42	0.77	0.414	0.106	(0.253)	0.308
186	15.50	0.77	0.414	0.105	(0.253)	0.309
187	15.58	0.63	0.342	0.105	(0.209)	0.237
188	15.67	0.63	0.342	0.104	(0.209)	0.238
189	15.75	0.63	0.342	0.104	(0.209)	0.238
190	15.83	0.63	0.342	0.103	(0.209)	0.239
191	15.92	0.63	0.342	0.103	(0.209)	0.239
192	16.00	0.63	0.342	0.102	(0.209)	0.240
193	16.08	0.13	0.072	(0.101)	0.044	0.028
194	16.17	0.13	0.072	(0.101)	0.044	0.028

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

195	16.25	0.13	0.072	(0.100)	0.044	0.028
196	16.33	0.13	0.072	(0.100)	0.044	0.028
197	16.42	0.13	0.072	(0.099)	0.044	0.028
198	16.50	0.13	0.072	(0.099)	0.044	0.028
199	16.58	0.10	0.054	(0.098)	0.033	0.021
200	16.67	0.10	0.054	(0.098)	0.033	0.021
201	16.75	0.10	0.054	(0.097)	0.033	0.021
202	16.83	0.10	0.054	(0.097)	0.033	0.021
203	16.92	0.10	0.054	(0.096)	0.033	0.021
204	17.00	0.10	0.054	(0.096)	0.033	0.021
205	17.08	0.17	0.090	(0.095)	0.055	0.035
206	17.17	0.17	0.090	(0.095)	0.055	0.035
207	17.25	0.17	0.090	(0.094)	0.055	0.035
208	17.33	0.17	0.090	(0.094)	0.055	0.035
209	17.42	0.17	0.090	(0.094)	0.055	0.035
210	17.50	0.17	0.090	(0.093)	0.055	0.035
211	17.58	0.17	0.090	(0.093)	0.055	0.035
212	17.67	0.17	0.090	(0.092)	0.055	0.035
213	17.75	0.17	0.090	(0.092)	0.055	0.035
214	17.83	0.13	0.072	(0.091)	0.044	0.028
215	17.92	0.13	0.072	(0.091)	0.044	0.028
216	18.00	0.13	0.072	(0.090)	0.044	0.028
217	18.08	0.13	0.072	(0.090)	0.044	0.028
218	18.17	0.13	0.072	(0.089)	0.044	0.028
219	18.25	0.13	0.072	(0.089)	0.044	0.028
220	18.33	0.13	0.072	(0.089)	0.044	0.028
221	18.42	0.13	0.072	(0.088)	0.044	0.028
222	18.50	0.13	0.072	(0.088)	0.044	0.028
223	18.58	0.10	0.054	(0.087)	0.033	0.021
224	18.67	0.10	0.054	(0.087)	0.033	0.021
225	18.75	0.10	0.054	(0.086)	0.033	0.021
226	18.83	0.07	0.036	(0.086)	0.022	0.014
227	18.92	0.07	0.036	(0.086)	0.022	0.014
228	19.00	0.07	0.036	(0.085)	0.022	0.014
229	19.08	0.10	0.054	(0.085)	0.033	0.021
230	19.17	0.10	0.054	(0.084)	0.033	0.021
231	19.25	0.10	0.054	(0.084)	0.033	0.021
232	19.33	0.13	0.072	(0.084)	0.044	0.028
233	19.42	0.13	0.072	(0.083)	0.044	0.028
234	19.50	0.13	0.072	(0.083)	0.044	0.028
235	19.58	0.10	0.054	(0.082)	0.033	0.021
236	19.67	0.10	0.054	(0.082)	0.033	0.021
237	19.75	0.10	0.054	(0.082)	0.033	0.021
238	19.83	0.07	0.036	(0.081)	0.022	0.014
239	19.92	0.07	0.036	(0.081)	0.022	0.014
240	20.00	0.07	0.036	(0.081)	0.022	0.014
241	20.08	0.10	0.054	(0.080)	0.033	0.021
242	20.17	0.10	0.054	(0.080)	0.033	0.021
243	20.25	0.10	0.054	(0.080)	0.033	0.021
244	20.33	0.10	0.054	(0.079)	0.033	0.021
245	20.42	0.10	0.054	(0.079)	0.033	0.021
246	20.50	0.10	0.054	(0.079)	0.033	0.021
247	20.58	0.10	0.054	(0.078)	0.033	0.021
248	20.67	0.10	0.054	(0.078)	0.033	0.021
249	20.75	0.10	0.054	(0.078)	0.033	0.021
250	20.83	0.07	0.036	(0.077)	0.022	0.014
251	20.92	0.07	0.036	(0.077)	0.022	0.014
252	21.00	0.07	0.036	(0.077)	0.022	0.014
253	21.08	0.10	0.054	(0.076)	0.033	0.021
254	21.17	0.10	0.054	(0.076)	0.033	0.021
255	21.25	0.10	0.054	(0.076)	0.033	0.021
256	21.33	0.07	0.036	(0.075)	0.022	0.014
257	21.42	0.07	0.036	(0.075)	0.022	0.014
258	21.50	0.07	0.036	(0.075)	0.022	0.014
259	21.58	0.10	0.054	(0.075)	0.033	0.021
260	21.67	0.10	0.054	(0.074)	0.033	0.021
261	21.75	0.10	0.054	(0.074)	0.033	0.021
262	21.83	0.07	0.036	(0.074)	0.022	0.014
263	21.92	0.07	0.036	(0.074)	0.022	0.014
264	22.00	0.07	0.036	(0.073)	0.022	0.014
265	22.08	0.10	0.054	(0.073)	0.033	0.021
266	22.17	0.10	0.054	(0.073)	0.033	0.021
267	22.25	0.10	0.054	(0.073)	0.033	0.021
268	22.33	0.07	0.036	(0.072)	0.022	0.014

269	22.42	0.07	0.036	(0.072)	0.022	0.014
270	22.50	0.07	0.036	(0.072)	0.022	0.014
271	22.58	0.07	0.036	(0.072)	0.022	0.014
272	22.67	0.07	0.036	(0.072)	0.022	0.014
273	22.75	0.07	0.036	(0.071)	0.022	0.014
274	22.83	0.07	0.036	(0.071)	0.022	0.014
275	22.92	0.07	0.036	(0.071)	0.022	0.014
276	23.00	0.07	0.036	(0.071)	0.022	0.014
277	23.08	0.07	0.036	(0.071)	0.022	0.014
278	23.17	0.07	0.036	(0.070)	0.022	0.014
279	23.25	0.07	0.036	(0.070)	0.022	0.014
280	23.33	0.07	0.036	(0.070)	0.022	0.014
281	23.42	0.07	0.036	(0.070)	0.022	0.014
282	23.50	0.07	0.036	(0.070)	0.022	0.014
283	23.58	0.07	0.036	(0.070)	0.022	0.014
284	23.67	0.07	0.036	(0.070)	0.022	0.014
285	23.75	0.07	0.036	(0.070)	0.022	0.014
286	23.83	0.07	0.036	(0.070)	0.022	0.014
287	23.92	0.07	0.036	(0.069)	0.022	0.014
288	24.00	0.07	0.036	(0.069)	0.022	0.014

(Loss Rate Not Used)

Sum = 100.0 Sum = 31.5

Flood volume = Effective rainfall 2.62(In)
 times area 1.6(Ac.)/[(In)/(Ft.)] = 0.4(Ac.Ft)
 Total soil loss = 1.88(In)
 Total soil loss = 0.255(Ac.Ft)
 Total rainfall = 4.50(In)
 Flood volume = 15523.0 Cubic Feet
 Total soil loss = 11102.9 Cubic Feet

 Peak flow rate of this hydrograph = 0.810(CFS)

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24 - H O U R S T O R M
 R u n o f f H y d r o g r a p h

 Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0001	0.02	Q				
0+10	0.0003	0.02	Q				
0+15	0.0004	0.02	Q				
0+20	0.0006	0.03	Q				
0+25	0.0009	0.03	Q				
0+30	0.0011	0.03	Q				
0+35	0.0013	0.03	Q				
0+40	0.0016	0.03	Q				
0+45	0.0018	0.03	Q				
0+50	0.0021	0.04	Q				
0+55	0.0024	0.05	Q				
1+ 0	0.0027	0.05	Q				
1+ 5	0.0030	0.04	Q				
1+10	0.0032	0.03	Q				
1+15	0.0035	0.03	Q				
1+20	0.0037	0.03	Q				
1+25	0.0040	0.03	Q				
1+30	0.0042	0.03	Q				
1+35	0.0044	0.03	Q				
1+40	0.0047	0.03	Q				
1+45	0.0049	0.03	Q				
1+50	0.0052	0.04	Q				
1+55	0.0055	0.05	Q				
2+ 0	0.0058	0.05	Q				
2+ 5	0.0061	0.05	Q				
2+10	0.0065	0.05	Q				
2+15	0.0068	0.05	Q				
2+20	0.0071	0.05	Q				
2+25	0.0074	0.05	Q				
2+30	0.0077	0.05	Q				
2+35	0.0081	0.05	Q				
2+40	0.0085	0.06	Q				
2+45	0.0089	0.06	Q				

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

2+50	0.0093	0.06	QV				
2+55	0.0097	0.06	QV				
3+ 0	0.0101	0.06	QV				
3+ 5	0.0105	0.06	QV				
3+10	0.0109	0.06	QV				
3+15	0.0113	0.06	QV				
3+20	0.0117	0.06	QV				
3+25	0.0120	0.06	QV				
3+30	0.0124	0.06	QV				
3+35	0.0128	0.06	QV				
3+40	0.0132	0.06	QV				
3+45	0.0136	0.06	QV				
3+50	0.0141	0.07	QV				
3+55	0.0146	0.07	QV				
4+ 0	0.0150	0.07	QV				
4+ 5	0.0155	0.07	QV				
4+10	0.0160	0.07	QV				
4+15	0.0164	0.07	QV				
4+20	0.0170	0.08	QV				
4+25	0.0175	0.08	QV				
4+30	0.0181	0.08	Q V				
4+35	0.0186	0.08	Q V				
4+40	0.0192	0.08	Q V				
4+45	0.0197	0.08	Q V				
4+50	0.0204	0.09	Q V				
4+55	0.0210	0.09	Q V				
5+ 0	0.0216	0.09	Q V				
5+ 5	0.0221	0.08	Q V				
5+10	0.0226	0.07	Q V				
5+15	0.0231	0.07	Q V				
5+20	0.0236	0.08	Q V				
5+25	0.0242	0.08	Q V				
5+30	0.0247	0.08	Q V				
5+35	0.0253	0.09	Q V				
5+40	0.0260	0.09	Q V				
5+45	0.0266	0.09	Q V				
5+50	0.0272	0.09	Q V				
5+55	0.0279	0.09	Q V				
6+ 0	0.0285	0.09	Q V				
6+ 5	0.0292	0.10	Q V				
6+10	0.0299	0.10	Q V				
6+15	0.0306	0.10	Q V				
6+20	0.0313	0.10	Q V				
6+25	0.0320	0.10	Q V				
6+30	0.0327	0.10	Q V				
6+35	0.0335	0.11	Q V				
6+40	0.0343	0.11	Q V				
6+45	0.0351	0.11	Q V				
6+50	0.0359	0.11	Q V				
6+55	0.0367	0.11	Q V				
7+ 0	0.0375	0.11	Q V				
7+ 5	0.0382	0.11	Q V				
7+10	0.0390	0.11	Q V				
7+15	0.0398	0.11	Q V				
7+20	0.0407	0.12	Q V				
7+25	0.0415	0.13	Q V				
7+30	0.0424	0.13	Q V				
7+35	0.0433	0.13	Q V				
7+40	0.0443	0.14	Q V				
7+45	0.0452	0.14	Q V				
7+50	0.0462	0.15	Q V				
7+55	0.0473	0.15	Q V				
8+ 0	0.0483	0.15	Q V				
8+ 5	0.0494	0.17	Q V				
8+10	0.0506	0.18	Q V				
8+15	0.0519	0.18	Q V				
8+20	0.0531	0.18	Q V				
8+25	0.0543	0.18	Q V				
8+30	0.0556	0.18	Q V				
8+35	0.0570	0.20	Q V				
8+40	0.0584	0.21	Q V				
8+45	0.0599	0.21	Q V				
8+50	0.0615	0.24	Q V				
8+55	0.0632	0.25	Q V				

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

15+10	0.3021	0.53	Q				V	
15+15	0.3057	0.53	Q				V	
15+20	0.3093	0.51	Q				V	
15+25	0.3128	0.51	Q				V	
15+30	0.3163	0.51	Q				V	
15+35	0.3192	0.43	Q				V	
15+40	0.3219	0.39	Q				V	
15+45	0.3246	0.39	Q				V	
15+50	0.3273	0.39	Q				V	
15+55	0.3300	0.39	Q				V	
16+ 0	0.3327	0.39	Q				V	
16+ 5	0.3338	0.16	Q				V	
16+10	0.3341	0.05	Q				V	
16+15	0.3344	0.05	Q				V	
16+20	0.3348	0.05	Q				V	
16+25	0.3351	0.05	Q				V	
16+30	0.3354	0.05	Q				V	
16+35	0.3356	0.04	Q				V	
16+40	0.3359	0.03	Q				V	
16+45	0.3361	0.03	Q				V	
16+50	0.3364	0.03	Q				V	
16+55	0.3366	0.03	Q				V	
17+ 0	0.3368	0.03	Q				V	
17+ 5	0.3372	0.05	Q				V	
17+10	0.3376	0.06	Q				V	
17+15	0.3380	0.06	Q				V	
17+20	0.3384	0.06	Q				V	
17+25	0.3388	0.06	Q				V	
17+30	0.3392	0.06	Q				V	
17+35	0.3396	0.06	Q				V	
17+40	0.3399	0.06	Q				V	
17+45	0.3403	0.06	Q				V	
17+50	0.3407	0.05	Q				V	
17+55	0.3410	0.05	Q				V	
18+ 0	0.3413	0.05	Q				V	
18+ 5	0.3416	0.05	Q				V	
18+10	0.3419	0.05	Q				V	
18+15	0.3423	0.05	Q				V	
18+20	0.3426	0.05	Q				V	
18+25	0.3429	0.05	Q				V	
18+30	0.3432	0.05	Q				V	
18+35	0.3435	0.04	Q				V	
18+40	0.3437	0.03	Q				V	
18+45	0.3440	0.03	Q				V	
18+50	0.3441	0.03	Q				V	
18+55	0.3443	0.02	Q				V	
19+ 0	0.3445	0.02	Q				V	
19+ 5	0.3447	0.03	Q				V	
19+10	0.3449	0.03	Q				V	
19+15	0.3451	0.03	Q				V	
19+20	0.3454	0.04	Q				V	
19+25	0.3457	0.05	Q				V	
19+30	0.3461	0.05	Q				V	
19+35	0.3463	0.04	Q				V	
19+40	0.3466	0.03	Q				V	
19+45	0.3468	0.03	Q				V	
19+50	0.3470	0.03	Q				V	
19+55	0.3471	0.02	Q				V	
20+ 0	0.3473	0.02	Q				V	
20+ 5	0.3475	0.03	Q				V	
20+10	0.3477	0.03	Q				V	
20+15	0.3480	0.03	Q				V	
20+20	0.3482	0.03	Q				V	
20+25	0.3485	0.03	Q				V	
20+30	0.3487	0.03	Q				V	
20+35	0.3489	0.03	Q				V	
20+40	0.3492	0.03	Q				V	
20+45	0.3494	0.03	Q				V	
20+50	0.3496	0.03	Q				V	
20+55	0.3497	0.02	Q				V	
21+ 0	0.3499	0.02	Q				V	
21+ 5	0.3501	0.03	Q				V	
21+10	0.3504	0.03	Q				V	
21+15	0.3506	0.03	Q				V	

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

21+20	0.3508	0.03	Q				V
21+25	0.3509	0.02	Q				V
21+30	0.3511	0.02	Q				V
21+35	0.3513	0.03	Q				V
21+40	0.3515	0.03	Q				V
21+45	0.3518	0.03	Q				V
21+50	0.3520	0.03	Q				V
21+55	0.3521	0.02	Q				V
22+ 0	0.3523	0.02	Q				V
22+ 5	0.3525	0.03	Q				V
22+10	0.3527	0.03	Q				V
22+15	0.3530	0.03	Q				V
22+20	0.3531	0.03	Q				V
22+25	0.3533	0.02	Q				V
22+30	0.3535	0.02	Q				V
22+35	0.3536	0.02	Q				V
22+40	0.3538	0.02	Q				V
22+45	0.3539	0.02	Q				V
22+50	0.3541	0.02	Q				V
22+55	0.3543	0.02	Q				V
23+ 0	0.3544	0.02	Q				V
23+ 5	0.3546	0.02	Q				V
23+10	0.3547	0.02	Q				V
23+15	0.3549	0.02	Q				V
23+20	0.3550	0.02	Q				V
23+25	0.3552	0.02	Q				V
23+30	0.3554	0.02	Q				V
23+35	0.3555	0.02	Q				V
23+40	0.3557	0.02	Q				V
23+45	0.3558	0.02	Q				V
23+50	0.3560	0.02	Q				V
23+55	0.3562	0.02	Q				V
24+ 0	0.3563	0.02	Q				V
24+ 5	0.3564	0.01	Q				V

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

- **Area 'A' – 10 Year 1 Hour Post-Development Condition – Unit Hydrograph**

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
 Study date 07/23/20 File: pr10110.out

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Riverside County Synthetic Unit Hydrology Method
 RCFC & WCD Manual date - April 1978

Program License Serial Number 6407

English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

English Units used in output format

FARM MARKET EXPANSION
 PROPOSED CONDITION UNIT HYDROGRAPH - 10 YEAR 1 HOUR STORM
 WMB & ASSOCIATES, JULY 2020
 BY: BRIAN LOWELL, PE

 Drainage Area = 1.68(Ac.) = 0.003 Sq. Mi.
 Drainage Area for Depth-Area Areal Adjustment = 1.68(Ac.) = 0.003 Sq. Mi.
 Length along longest watercourse = 483.00(Ft.)
 Length along longest watercourse measured to centroid = 149.00(Ft.)
 Length along longest watercourse = 0.091 Mi.
 Length along longest watercourse measured to centroid = 0.028 Mi.
 Difference in elevation = 7.90(Ft.)
 Slope along watercourse = 86.3602 Ft./Mi.
 Average Manning's 'N' = 0.015
 Lag time = 0.016 Hr.
 Lag time = 0.96 Min.
 25% of lag time = 0.24 Min.
 40% of lag time = 0.38 Min.
 Unit time = 5.00 Min.
 Duration of storm = 1 Hour(s)
 User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
1.68	0.50	0.84

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
1.68	1.20	2.02

STORM EVENT (YEAR) = 10.00
 Area Averaged 2-Year Rainfall = 0.500(In)
 Area Averaged 100-Year Rainfall = 1.200(In)

Point rain (area averaged) = 0.788(In)
 Areal adjustment factor = 100.00 %
 Adjusted average point rain = 0.788(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
1.680	56.00	0.700
Total Area Entered = 1.68(Ac.)		

RI	RI	Infil. Rate	Impervious	Adj. Infil. Rate	Area%	F
AMC2	AMC-2	(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
56.0	56.0	0.511	0.700	0.189	1.000	0.189
Sum (F) =						0.189

Area averaged mean soil loss (F) (In/Hr) = 0.189

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

- **Area 'A' – 10 Year 3 Hour Post-Development Condition – Unit Hydrograph**

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
 Study date 07/23/20 File: pr10310.out

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Riverside County Synthetic Unit Hydrology Method
 RCFC & WCD Manual date - April 1978

Program License Serial Number 6407

English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

English Units used in output format

FARM MARKET EXPANSION
 PROPOSED CONDITION UNIT HYDROGRAPH - 10 YEAR 3 HOUR STORM
 WMB & ASSOCIATES, JULY 2020
 BY: BRIAN LOWELL, PE

Drainage Area = 1.68(Ac.) = 0.003 Sq. Mi.
 Drainage Area for Depth-Area Areal Adjustment = 1.68(Ac.) = 0.003 Sq. Mi.
 Length along longest watercourse = 483.00(Ft.)
 Length along longest watercourse measured to centroid = 149.00(Ft.)
 Length along longest watercourse = 0.091 Mi.
 Length along longest watercourse measured to centroid = 0.028 Mi.
 Difference in elevation = 7.90(Ft.)
 Slope along watercourse = 86.3602 Ft./Mi.
 Average Manning's 'N' = 0.015
 Lag time = 0.016 Hr.
 Lag time = 0.96 Min.
 25% of lag time = 0.24 Min.
 40% of lag time = 0.38 Min.
 Unit time = 5.00 Min.
 Duration of storm = 3 Hour(s)
 User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
1.68	0.80	1.34

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
1.68	1.80	3.02

STORM EVENT (YEAR) = 10.00
 Area Averaged 2-Year Rainfall = 0.800(In)
 Area Averaged 100-Year Rainfall = 1.800(In)

Point rain (area averaged) = 1.211(In)
 Areal adjustment factor = 100.00 %
 Adjusted average point rain = 1.211(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
1.680	56.00	0.700
Total Area Entered = 1.68(Ac.)		

RI RI Infil. Rate Impervious Adj. Infil. Rate Area% F

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

AMC2	AMC-2	(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
56.0	56.0	0.511	0.700	0.189	1.000	0.189
					Sum (F) =	0.189

Area averaged mean soil loss (F) (In/Hr) = 0.189
 Minimum soil loss rate ((In/Hr)) = 0.094
 (for 24 hour storm duration)
 Soil loss rate (decimal) = 0.340

Unit Hydrograph
 VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	519.885	71.883
2	0.167	1039.769	28.117
		Sum = 100.000	Sum= 1.693

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)	
1	0.08	1.30	0.189	(0.189)	0.064	0.125
2	0.17	1.30	0.189	(0.189)	0.064	0.125
3	0.25	1.10	0.160	(0.189)	0.054	0.106
4	0.33	1.50	0.218	(0.189)	0.074	0.144
5	0.42	1.50	0.218	(0.189)	0.074	0.144
6	0.50	1.80	0.262	(0.189)	0.089	0.173
7	0.58	1.50	0.218	(0.189)	0.074	0.144
8	0.67	1.80	0.262	(0.189)	0.089	0.173
9	0.75	1.80	0.262	(0.189)	0.089	0.173
10	0.83	1.50	0.218	(0.189)	0.074	0.144
11	0.92	1.60	0.233	(0.189)	0.079	0.154
12	1.00	1.80	0.262	(0.189)	0.089	0.173
13	1.08	2.20	0.320	(0.189)	0.109	0.211
14	1.17	2.20	0.320	(0.189)	0.109	0.211
15	1.25	2.20	0.320	(0.189)	0.109	0.211
16	1.33	2.00	0.291	(0.189)	0.099	0.192
17	1.42	2.60	0.378	(0.189)	0.129	0.249
18	1.50	2.70	0.392	(0.189)	0.133	0.259
19	1.58	2.40	0.349	(0.189)	0.119	0.230
20	1.67	2.70	0.392	(0.189)	0.133	0.259
21	1.75	3.30	0.480	(0.189)	0.163	0.317
22	1.83	3.10	0.451	(0.189)	0.153	0.297
23	1.92	2.90	0.422	(0.189)	0.143	0.278
24	2.00	3.00	0.436	(0.189)	0.148	0.288
25	2.08	3.10	0.451	(0.189)	0.153	0.297
26	2.17	4.20	0.611	0.189	(0.208)	0.422
27	2.25	5.00	0.727	0.189	(0.247)	0.538
28	2.33	3.50	0.509	(0.189)	0.173	0.336
29	2.42	6.80	0.989	0.189	(0.336)	0.800
30	2.50	7.30	1.061	0.189	(0.361)	0.872
31	2.58	8.20	1.192	0.189	(0.405)	1.003
32	2.67	5.90	0.858	0.189	(0.292)	0.669
33	2.75	2.00	0.291	(0.189)	0.099	0.192
34	2.83	1.80	0.262	(0.189)	0.089	0.173
35	2.92	1.80	0.262	(0.189)	0.089	0.173
36	3.00	0.60	0.087	(0.189)	0.030	0.058

(Loss Rate Not Used)
 Sum = 100.0
 Flood volume = Effective rainfall 0.86(In)
 times area 1.7(Ac.)/[(In)/(Ft.)] = 0.1(Ac.Ft)
 Total soil loss = 0.35(In)
 Total soil loss = 0.049(Ac.Ft)
 Total rainfall = 1.21(In)
 Flood volume = 5238.9 Cubic Feet
 Total soil loss = 2148.7 Cubic Feet

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Peak flow rate of this hydrograph = 1.637(CFS)

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3 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0010	0.15	Q				
0+10	0.0025	0.21	Q				
0+15	0.0038	0.19	QV				
0+20	0.0053	0.23	QV				
0+25	0.0070	0.24	Q V				
0+30	0.0089	0.28	QV				
0+35	0.0107	0.26	Q V				
0+40	0.0126	0.28	Q V				
0+45	0.0147	0.29	Q V				
0+50	0.0164	0.26	Q V				
0+55	0.0182	0.26	Q V				
1+ 0	0.0201	0.28	Q V				
1+ 5	0.0225	0.34	Q V				
1+10	0.0249	0.36	Q V				
1+15	0.0274	0.36	Q V				
1+20	0.0297	0.33	Q V				
1+25	0.0324	0.40	Q V				
1+30	0.0354	0.43	Q V				
1+35	0.0382	0.40	Q V				
1+40	0.0411	0.43	Q V				
1+45	0.0446	0.51	Q V				
1+50	0.0482	0.51	Q V				
1+55	0.0515	0.48	Q V				
2+ 0	0.0548	0.48	Q V				
2+ 5	0.0582	0.50	Q V				
2+10	0.0627	0.65	Q V				
2+15	0.0686	0.86	Q V				
2+20	0.0732	0.67	Q V				
2+25	0.0810	1.13	Q V				
2+30	0.0910	1.44	Q V				
2+35	0.1022	1.64	Q V				
2+40	0.1111	1.29	Q V				
2+45	0.1149	0.55	Q V				
2+50	0.1170	0.30	Q V				
2+55	0.1190	0.29	Q V				
3+ 0	0.1201	0.15	Q V				
3+ 5	0.1203	0.03	Q V				

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

- **Area 'A' – 10 Year 6 Hour Post-Development Condition – Unit Hydrograph**

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Unit Hydrograph Analysis

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 Study date 07/23/20 File: pr10610.out

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Riverside County Synthetic Unit Hydrology Method
 RCFC & WCD Manual date - April 1978

Program License Serial Number 6407

English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

English Units used in output format

FARM MARKET EXPANSION
 PROPOSED CONDITION UNIT HYDROGRAPH - 10 YEAR 6 HOUR STORM
 WMB & ASSOCIATES, JULY 2020
 BY: BRIAN LOWELL, PE

Drainage Area = 1.68(Ac.) = 0.003 Sq. Mi.
 Drainage Area for Depth-Area Areal Adjustment = 1.68(Ac.) = 0.003 Sq. Mi.
 Length along longest watercourse = 483.00(Ft.)
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 Length along longest watercourse = 0.091 Mi.
 Length along longest watercourse measured to centroid = 0.028 Mi.
 Difference in elevation = 7.90(Ft.)
 Slope along watercourse = 86.3602 Ft./Mi.
 Average Manning's 'N' = 0.015
 Lag time = 0.016 Hr.
 Lag time = 0.96 Min.
 25% of lag time = 0.24 Min.
 40% of lag time = 0.38 Min.
 Unit time = 5.00 Min.
 Duration of storm = 6 Hour(s)
 User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
1.68	1.20	2.02

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
1.68	2.50	4.20

STORM EVENT (YEAR) = 10.00
 Area Averaged 2-Year Rainfall = 1.200(In)
 Area Averaged 100-Year Rainfall = 2.500(In)

Point rain (area averaged) = 1.735(In)
 Areal adjustment factor = 100.00 %
 Adjusted average point rain = 1.735(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
1.680	56.00	0.700
Total Area Entered = 1.68(Ac.)		

RI RI Infil. Rate Impervious Adj. Infil. Rate Area% F

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

AMC2	AMC-2	(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
56.0	56.0	0.511	0.700	0.189	1.000	0.189
						Sum (F) = 0.189

Area averaged mean soil loss (F) (In/Hr) = 0.189
 Minimum soil loss rate ((In/Hr)) = 0.094
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.340

Unit Hydrograph
 VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	519.885	71.883
2	0.167	1039.769	28.117
		Sum = 100.000	Sum= 1.693

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)	
1	0.08	0.50	0.104	(0.189)	0.035	0.069
2	0.17	0.60	0.125	(0.189)	0.042	0.082
3	0.25	0.60	0.125	(0.189)	0.042	0.082
4	0.33	0.60	0.125	(0.189)	0.042	0.082
5	0.42	0.60	0.125	(0.189)	0.042	0.082
6	0.50	0.70	0.146	(0.189)	0.050	0.096
7	0.58	0.70	0.146	(0.189)	0.050	0.096
8	0.67	0.70	0.146	(0.189)	0.050	0.096
9	0.75	0.70	0.146	(0.189)	0.050	0.096
10	0.83	0.70	0.146	(0.189)	0.050	0.096
11	0.92	0.70	0.146	(0.189)	0.050	0.096
12	1.00	0.80	0.167	(0.189)	0.057	0.110
13	1.08	0.80	0.167	(0.189)	0.057	0.110
14	1.17	0.80	0.167	(0.189)	0.057	0.110
15	1.25	0.80	0.167	(0.189)	0.057	0.110
16	1.33	0.80	0.167	(0.189)	0.057	0.110
17	1.42	0.80	0.167	(0.189)	0.057	0.110
18	1.50	0.80	0.167	(0.189)	0.057	0.110
19	1.58	0.80	0.167	(0.189)	0.057	0.110
20	1.67	0.80	0.167	(0.189)	0.057	0.110
21	1.75	0.80	0.167	(0.189)	0.057	0.110
22	1.83	0.80	0.167	(0.189)	0.057	0.110
23	1.92	0.80	0.167	(0.189)	0.057	0.110
24	2.00	0.90	0.187	(0.189)	0.064	0.124
25	2.08	0.80	0.167	(0.189)	0.057	0.110
26	2.17	0.90	0.187	(0.189)	0.064	0.124
27	2.25	0.90	0.187	(0.189)	0.064	0.124
28	2.33	0.90	0.187	(0.189)	0.064	0.124
29	2.42	0.90	0.187	(0.189)	0.064	0.124
30	2.50	0.90	0.187	(0.189)	0.064	0.124
31	2.58	0.90	0.187	(0.189)	0.064	0.124
32	2.67	0.90	0.187	(0.189)	0.064	0.124
33	2.75	1.00	0.208	(0.189)	0.071	0.137
34	2.83	1.00	0.208	(0.189)	0.071	0.137
35	2.92	1.00	0.208	(0.189)	0.071	0.137
36	3.00	1.00	0.208	(0.189)	0.071	0.137
37	3.08	1.00	0.208	(0.189)	0.071	0.137
38	3.17	1.10	0.229	(0.189)	0.078	0.151
39	3.25	1.10	0.229	(0.189)	0.078	0.151
40	3.33	1.10	0.229	(0.189)	0.078	0.151
41	3.42	1.20	0.250	(0.189)	0.085	0.165
42	3.50	1.30	0.271	(0.189)	0.092	0.179
43	3.58	1.40	0.291	(0.189)	0.099	0.192
44	3.67	1.40	0.291	(0.189)	0.099	0.192
45	3.75	1.50	0.312	(0.189)	0.106	0.206
46	3.83	1.50	0.312	(0.189)	0.106	0.206

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

47	3.92	1.60	0.333	(0.189)	0.113	0.220
48	4.00	1.60	0.333	(0.189)	0.113	0.220
49	4.08	1.70	0.354	(0.189)	0.120	0.234
50	4.17	1.80	0.375	(0.189)	0.127	0.247
51	4.25	1.90	0.396	(0.189)	0.134	0.261
52	4.33	2.00	0.416	(0.189)	0.142	0.275
53	4.42	2.10	0.437	(0.189)	0.149	0.289
54	4.50	2.10	0.437	(0.189)	0.149	0.289
55	4.58	2.20	0.458	(0.189)	0.156	0.302
56	4.67	2.30	0.479	(0.189)	0.163	0.316
57	4.75	2.40	0.500	(0.189)	0.170	0.330
58	4.83	2.40	0.500	(0.189)	0.170	0.330
59	4.92	2.50	0.520	(0.189)	0.177	0.343
60	5.00	2.60	0.541	(0.189)	0.184	0.357
61	5.08	3.10	0.645	0.189	(0.219)	0.456
62	5.17	3.60	0.749	0.189	(0.255)	0.560
63	5.25	3.90	0.812	0.189	(0.276)	0.623
64	5.33	4.20	0.874	0.189	(0.297)	0.685
65	5.42	4.70	0.978	0.189	(0.333)	0.789
66	5.50	5.60	1.166	0.189	(0.396)	0.977
67	5.58	1.90	0.396	(0.189)	0.134	0.261
68	5.67	0.90	0.187	(0.189)	0.064	0.124
69	5.75	0.60	0.125	(0.189)	0.042	0.082
70	5.83	0.50	0.104	(0.189)	0.035	0.069
71	5.92	0.30	0.062	(0.189)	0.021	0.041
72	6.00	0.20	0.042	(0.189)	0.014	0.027

(Loss Rate Not Used)

Sum = 100.0 Sum = 14.4

Flood volume = Effective rainfall 1.20(In)
 times area 1.7(Ac.)/[(In)/(Ft.)] = 0.2(Ac.Ft)
 Total soil loss = 0.54(In)
 Total soil loss = 0.075(Ac.Ft)
 Total rainfall = 1.73(In)
 Flood volume = 7309.1 Cubic Feet
 Total soil loss = 3270.5 Cubic Feet

 Peak flow rate of this hydrograph = 1.565(CFS)

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6 - H O U R S T O R M
 R u n o f f H y d r o g r a p h

 Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0006	0.08	Q				
0+10	0.0015	0.13	Q				
0+15	0.0025	0.14	Q				
0+20	0.0034	0.14	Q				
0+25	0.0044	0.14	QV				
0+30	0.0055	0.16	QV				
0+35	0.0066	0.16	QV				
0+40	0.0077	0.16	QV				
0+45	0.0088	0.16	Q V				
0+50	0.0099	0.16	Q V				
0+55	0.0111	0.16	Q V				
1+ 0	0.0123	0.18	Q V				
1+ 5	0.0136	0.19	Q V				
1+10	0.0149	0.19	Q V				
1+15	0.0162	0.19	Q V				
1+20	0.0174	0.19	Q V				
1+25	0.0187	0.19	Q V				
1+30	0.0200	0.19	Q V				
1+35	0.0213	0.19	Q V				
1+40	0.0226	0.19	Q V				
1+45	0.0238	0.19	Q V				
1+50	0.0251	0.19	Q V				
1+55	0.0264	0.19	Q V				
2+ 0	0.0278	0.20	Q V				
2+ 5	0.0291	0.19	Q V				
2+10	0.0305	0.20	Q V				
2+15	0.0320	0.21	Q V				

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

- **Area 'A' – 10 Year 24 Hour Post-Development Condition – Unit Hydrograph**

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
 Study date 07/23/20 File: pr102410.out

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Riverside County Synthetic Unit Hydrology Method
 RCFC & WCD Manual date - April 1978

Program License Serial Number 6407

English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

English Units used in output format

FARM MARKET EXPANSION
 PROPOSED CONDITION UNIT HYDROGRAPH - 10 YEAR 24 HOUR STORM
 WMB & ASSOCIATES, JULY 2020
 BY: BRIAN LOWELL, PE

 Drainage Area = 1.68(Ac.) = 0.003 Sq. Mi.
 Drainage Area for Depth-Area Areal Adjustment = 1.68(Ac.) = 0.003 Sq. Mi.
 Length along longest watercourse = 483.00(Ft.)
 Length along longest watercourse measured to centroid = 149.00(Ft.)
 Length along longest watercourse = 0.091 Mi.
 Length along longest watercourse measured to centroid = 0.028 Mi.
 Difference in elevation = 7.90(Ft.)
 Slope along watercourse = 86.3602 Ft./Mi.
 Average Manning's 'N' = 0.015
 Lag time = 0.016 Hr.
 Lag time = 0.96 Min.
 25% of lag time = 0.24 Min.
 40% of lag time = 0.38 Min.
 Unit time = 5.00 Min.
 Duration of storm = 24 Hour(s)
 User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
1.68	1.80	3.02

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
1.68	4.50	7.56

STORM EVENT (YEAR) = 10.00
 Area Averaged 2-Year Rainfall = 1.800(In)
 Area Averaged 100-Year Rainfall = 4.500(In)

Point rain (area averaged) = 2.911(In)
 Areal adjustment factor = 100.00 %
 Adjusted average point rain = 2.911(In)

Sub-Area Data:
 Area(Ac.) Runoff Index Impervious %
 1.680 56.00 0.700
 Total Area Entered = 1.68(Ac.)

RI RI Infil. Rate Impervious Adj. Infil. Rate Area% F

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

AMC2	AMC-2	(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
56.0	56.0	0.511	0.700	0.189	1.000	0.189
					Sum (F) =	0.189

Area averaged mean soil loss (F) (In/Hr) = 0.189
 Minimum soil loss rate ((In/Hr)) = 0.094
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.340

Unit Hydrograph
 VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	519.885	71.883
2	0.167	1039.769	28.117
		Sum = 100.000	Sum= 1.693

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr)		Effective (In/Hr)
				Max	Low	
1	0.08	0.07	0.023	(0.335)	0.008	0.015
2	0.17	0.07	0.023	(0.334)	0.008	0.015
3	0.25	0.07	0.023	(0.332)	0.008	0.015
4	0.33	0.10	0.035	(0.331)	0.012	0.023
5	0.42	0.10	0.035	(0.330)	0.012	0.023
6	0.50	0.10	0.035	(0.329)	0.012	0.023
7	0.58	0.10	0.035	(0.327)	0.012	0.023
8	0.67	0.10	0.035	(0.326)	0.012	0.023
9	0.75	0.10	0.035	(0.325)	0.012	0.023
10	0.83	0.13	0.047	(0.323)	0.016	0.031
11	0.92	0.13	0.047	(0.322)	0.016	0.031
12	1.00	0.13	0.047	(0.321)	0.016	0.031
13	1.08	0.10	0.035	(0.320)	0.012	0.023
14	1.17	0.10	0.035	(0.318)	0.012	0.023
15	1.25	0.10	0.035	(0.317)	0.012	0.023
16	1.33	0.10	0.035	(0.316)	0.012	0.023
17	1.42	0.10	0.035	(0.315)	0.012	0.023
18	1.50	0.10	0.035	(0.313)	0.012	0.023
19	1.58	0.10	0.035	(0.312)	0.012	0.023
20	1.67	0.10	0.035	(0.311)	0.012	0.023
21	1.75	0.10	0.035	(0.310)	0.012	0.023
22	1.83	0.13	0.047	(0.308)	0.016	0.031
23	1.92	0.13	0.047	(0.307)	0.016	0.031
24	2.00	0.13	0.047	(0.306)	0.016	0.031
25	2.08	0.13	0.047	(0.305)	0.016	0.031
26	2.17	0.13	0.047	(0.303)	0.016	0.031
27	2.25	0.13	0.047	(0.302)	0.016	0.031
28	2.33	0.13	0.047	(0.301)	0.016	0.031
29	2.42	0.13	0.047	(0.300)	0.016	0.031
30	2.50	0.13	0.047	(0.298)	0.016	0.031
31	2.58	0.17	0.058	(0.297)	0.020	0.038
32	2.67	0.17	0.058	(0.296)	0.020	0.038
33	2.75	0.17	0.058	(0.295)	0.020	0.038
34	2.83	0.17	0.058	(0.294)	0.020	0.038
35	2.92	0.17	0.058	(0.292)	0.020	0.038
36	3.00	0.17	0.058	(0.291)	0.020	0.038
37	3.08	0.17	0.058	(0.290)	0.020	0.038
38	3.17	0.17	0.058	(0.289)	0.020	0.038
39	3.25	0.17	0.058	(0.288)	0.020	0.038
40	3.33	0.17	0.058	(0.286)	0.020	0.038
41	3.42	0.17	0.058	(0.285)	0.020	0.038
42	3.50	0.17	0.058	(0.284)	0.020	0.038
43	3.58	0.17	0.058	(0.283)	0.020	0.038
44	3.67	0.17	0.058	(0.282)	0.020	0.038
45	3.75	0.17	0.058	(0.280)	0.020	0.038
46	3.83	0.20	0.070	(0.279)	0.024	0.046

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

47	3.92	0.20	0.070	(0.278)	0.024	0.046
48	4.00	0.20	0.070	(0.277)	0.024	0.046
49	4.08	0.20	0.070	(0.276)	0.024	0.046
50	4.17	0.20	0.070	(0.275)	0.024	0.046
51	4.25	0.20	0.070	(0.273)	0.024	0.046
52	4.33	0.23	0.082	(0.272)	0.028	0.054
53	4.42	0.23	0.082	(0.271)	0.028	0.054
54	4.50	0.23	0.082	(0.270)	0.028	0.054
55	4.58	0.23	0.082	(0.269)	0.028	0.054
56	4.67	0.23	0.082	(0.268)	0.028	0.054
57	4.75	0.23	0.082	(0.266)	0.028	0.054
58	4.83	0.27	0.093	(0.265)	0.032	0.061
59	4.92	0.27	0.093	(0.264)	0.032	0.061
60	5.00	0.27	0.093	(0.263)	0.032	0.061
61	5.08	0.20	0.070	(0.262)	0.024	0.046
62	5.17	0.20	0.070	(0.261)	0.024	0.046
63	5.25	0.20	0.070	(0.260)	0.024	0.046
64	5.33	0.23	0.082	(0.258)	0.028	0.054
65	5.42	0.23	0.082	(0.257)	0.028	0.054
66	5.50	0.23	0.082	(0.256)	0.028	0.054
67	5.58	0.27	0.093	(0.255)	0.032	0.061
68	5.67	0.27	0.093	(0.254)	0.032	0.061
69	5.75	0.27	0.093	(0.253)	0.032	0.061
70	5.83	0.27	0.093	(0.252)	0.032	0.061
71	5.92	0.27	0.093	(0.251)	0.032	0.061
72	6.00	0.27	0.093	(0.249)	0.032	0.061
73	6.08	0.30	0.105	(0.248)	0.036	0.069
74	6.17	0.30	0.105	(0.247)	0.036	0.069
75	6.25	0.30	0.105	(0.246)	0.036	0.069
76	6.33	0.30	0.105	(0.245)	0.036	0.069
77	6.42	0.30	0.105	(0.244)	0.036	0.069
78	6.50	0.30	0.105	(0.243)	0.036	0.069
79	6.58	0.33	0.116	(0.242)	0.040	0.077
80	6.67	0.33	0.116	(0.241)	0.040	0.077
81	6.75	0.33	0.116	(0.240)	0.040	0.077
82	6.83	0.33	0.116	(0.239)	0.040	0.077
83	6.92	0.33	0.116	(0.237)	0.040	0.077
84	7.00	0.33	0.116	(0.236)	0.040	0.077
85	7.08	0.33	0.116	(0.235)	0.040	0.077
86	7.17	0.33	0.116	(0.234)	0.040	0.077
87	7.25	0.33	0.116	(0.233)	0.040	0.077
88	7.33	0.37	0.128	(0.232)	0.044	0.085
89	7.42	0.37	0.128	(0.231)	0.044	0.085
90	7.50	0.37	0.128	(0.230)	0.044	0.085
91	7.58	0.40	0.140	(0.229)	0.048	0.092
92	7.67	0.40	0.140	(0.228)	0.048	0.092
93	7.75	0.40	0.140	(0.227)	0.048	0.092
94	7.83	0.43	0.151	(0.226)	0.051	0.100
95	7.92	0.43	0.151	(0.225)	0.051	0.100
96	8.00	0.43	0.151	(0.224)	0.051	0.100
97	8.08	0.50	0.175	(0.223)	0.059	0.115
98	8.17	0.50	0.175	(0.222)	0.059	0.115
99	8.25	0.50	0.175	(0.221)	0.059	0.115
100	8.33	0.50	0.175	(0.220)	0.059	0.115
101	8.42	0.50	0.175	(0.219)	0.059	0.115
102	8.50	0.50	0.175	(0.217)	0.059	0.115
103	8.58	0.53	0.186	(0.216)	0.063	0.123
104	8.67	0.53	0.186	(0.215)	0.063	0.123
105	8.75	0.53	0.186	(0.214)	0.063	0.123
106	8.83	0.57	0.198	(0.213)	0.067	0.131
107	8.92	0.57	0.198	(0.212)	0.067	0.131
108	9.00	0.57	0.198	(0.211)	0.067	0.131
109	9.08	0.63	0.221	(0.210)	0.075	0.146
110	9.17	0.63	0.221	(0.209)	0.075	0.146
111	9.25	0.63	0.221	(0.208)	0.075	0.146
112	9.33	0.67	0.233	(0.207)	0.079	0.154
113	9.42	0.67	0.233	(0.206)	0.079	0.154
114	9.50	0.67	0.233	(0.205)	0.079	0.154
115	9.58	0.70	0.245	(0.204)	0.083	0.161
116	9.67	0.70	0.245	(0.203)	0.083	0.161
117	9.75	0.70	0.245	(0.202)	0.083	0.161
118	9.83	0.73	0.256	(0.202)	0.087	0.169
119	9.92	0.73	0.256	(0.201)	0.087	0.169
120	10.00	0.73	0.256	(0.200)	0.087	0.169

121	10.08	0.50	0.175	(0.199)	0.059	0.115
122	10.17	0.50	0.175	(0.198)	0.059	0.115
123	10.25	0.50	0.175	(0.197)	0.059	0.115
124	10.33	0.50	0.175	(0.196)	0.059	0.115
125	10.42	0.50	0.175	(0.195)	0.059	0.115
126	10.50	0.50	0.175	(0.194)	0.059	0.115
127	10.58	0.67	0.233	(0.193)	0.079	0.154
128	10.67	0.67	0.233	(0.192)	0.079	0.154
129	10.75	0.67	0.233	(0.191)	0.079	0.154
130	10.83	0.67	0.233	(0.190)	0.079	0.154
131	10.92	0.67	0.233	(0.189)	0.079	0.154
132	11.00	0.67	0.233	(0.188)	0.079	0.154
133	11.08	0.63	0.221	(0.187)	0.075	0.146
134	11.17	0.63	0.221	(0.186)	0.075	0.146
135	11.25	0.63	0.221	(0.185)	0.075	0.146
136	11.33	0.63	0.221	(0.185)	0.075	0.146
137	11.42	0.63	0.221	(0.184)	0.075	0.146
138	11.50	0.63	0.221	(0.183)	0.075	0.146
139	11.58	0.57	0.198	(0.182)	0.067	0.131
140	11.67	0.57	0.198	(0.181)	0.067	0.131
141	11.75	0.57	0.198	(0.180)	0.067	0.131
142	11.83	0.60	0.210	(0.179)	0.071	0.138
143	11.92	0.60	0.210	(0.178)	0.071	0.138
144	12.00	0.60	0.210	(0.177)	0.071	0.138
145	12.08	0.83	0.291	(0.176)	0.099	0.192
146	12.17	0.83	0.291	(0.176)	0.099	0.192
147	12.25	0.83	0.291	(0.175)	0.099	0.192
148	12.33	0.87	0.303	(0.174)	0.103	0.200
149	12.42	0.87	0.303	(0.173)	0.103	0.200
150	12.50	0.87	0.303	(0.172)	0.103	0.200
151	12.58	0.93	0.326	(0.171)	0.111	0.215
152	12.67	0.93	0.326	(0.170)	0.111	0.215
153	12.75	0.93	0.326	(0.169)	0.111	0.215
154	12.83	0.97	0.338	(0.169)	0.115	0.223
155	12.92	0.97	0.338	(0.168)	0.115	0.223
156	13.00	0.97	0.338	(0.167)	0.115	0.223
157	13.08	1.13	0.396	(0.166)	0.135	0.261
158	13.17	1.13	0.396	(0.165)	0.135	0.261
159	13.25	1.13	0.396	(0.164)	0.135	0.261
160	13.33	1.13	0.396	(0.164)	0.135	0.261
161	13.42	1.13	0.396	(0.163)	0.135	0.261
162	13.50	1.13	0.396	(0.162)	0.135	0.261
163	13.58	0.77	0.268	(0.161)	0.091	0.177
164	13.67	0.77	0.268	(0.160)	0.091	0.177
165	13.75	0.77	0.268	(0.159)	0.091	0.177
166	13.83	0.77	0.268	(0.159)	0.091	0.177
167	13.92	0.77	0.268	(0.158)	0.091	0.177
168	14.00	0.77	0.268	(0.157)	0.091	0.177
169	14.08	0.90	0.314	(0.156)	0.107	0.207
170	14.17	0.90	0.314	(0.155)	0.107	0.207
171	14.25	0.90	0.314	(0.155)	0.107	0.207
172	14.33	0.87	0.303	(0.154)	0.103	0.200
173	14.42	0.87	0.303	(0.153)	0.103	0.200
174	14.50	0.87	0.303	(0.152)	0.103	0.200
175	14.58	0.87	0.303	(0.151)	0.103	0.200
176	14.67	0.87	0.303	(0.151)	0.103	0.200
177	14.75	0.87	0.303	(0.150)	0.103	0.200
178	14.83	0.83	0.291	(0.149)	0.099	0.192
179	14.92	0.83	0.291	(0.148)	0.099	0.192
180	15.00	0.83	0.291	(0.148)	0.099	0.192
181	15.08	0.80	0.279	(0.147)	0.095	0.184
182	15.17	0.80	0.279	(0.146)	0.095	0.184
183	15.25	0.80	0.279	(0.145)	0.095	0.184
184	15.33	0.77	0.268	(0.145)	0.091	0.177
185	15.42	0.77	0.268	(0.144)	0.091	0.177
186	15.50	0.77	0.268	(0.143)	0.091	0.177
187	15.58	0.63	0.221	(0.142)	0.075	0.146
188	15.67	0.63	0.221	(0.142)	0.075	0.146
189	15.75	0.63	0.221	(0.141)	0.075	0.146
190	15.83	0.63	0.221	(0.140)	0.075	0.146
191	15.92	0.63	0.221	(0.140)	0.075	0.146
192	16.00	0.63	0.221	(0.139)	0.075	0.146
193	16.08	0.13	0.047	(0.138)	0.016	0.031
194	16.17	0.13	0.047	(0.137)	0.016	0.031

195	16.25	0.13	0.047	(0.137)	0.016	0.031
196	16.33	0.13	0.047	(0.136)	0.016	0.031
197	16.42	0.13	0.047	(0.135)	0.016	0.031
198	16.50	0.13	0.047	(0.135)	0.016	0.031
199	16.58	0.10	0.035	(0.134)	0.012	0.023
200	16.67	0.10	0.035	(0.133)	0.012	0.023
201	16.75	0.10	0.035	(0.133)	0.012	0.023
202	16.83	0.10	0.035	(0.132)	0.012	0.023
203	16.92	0.10	0.035	(0.131)	0.012	0.023
204	17.00	0.10	0.035	(0.131)	0.012	0.023
205	17.08	0.17	0.058	(0.130)	0.020	0.038
206	17.17	0.17	0.058	(0.129)	0.020	0.038
207	17.25	0.17	0.058	(0.129)	0.020	0.038
208	17.33	0.17	0.058	(0.128)	0.020	0.038
209	17.42	0.17	0.058	(0.127)	0.020	0.038
210	17.50	0.17	0.058	(0.127)	0.020	0.038
211	17.58	0.17	0.058	(0.126)	0.020	0.038
212	17.67	0.17	0.058	(0.125)	0.020	0.038
213	17.75	0.17	0.058	(0.125)	0.020	0.038
214	17.83	0.13	0.047	(0.124)	0.016	0.031
215	17.92	0.13	0.047	(0.124)	0.016	0.031
216	18.00	0.13	0.047	(0.123)	0.016	0.031
217	18.08	0.13	0.047	(0.122)	0.016	0.031
218	18.17	0.13	0.047	(0.122)	0.016	0.031
219	18.25	0.13	0.047	(0.121)	0.016	0.031
220	18.33	0.13	0.047	(0.121)	0.016	0.031
221	18.42	0.13	0.047	(0.120)	0.016	0.031
222	18.50	0.13	0.047	(0.119)	0.016	0.031
223	18.58	0.10	0.035	(0.119)	0.012	0.023
224	18.67	0.10	0.035	(0.118)	0.012	0.023
225	18.75	0.10	0.035	(0.118)	0.012	0.023
226	18.83	0.07	0.023	(0.117)	0.008	0.015
227	18.92	0.07	0.023	(0.117)	0.008	0.015
228	19.00	0.07	0.023	(0.116)	0.008	0.015
229	19.08	0.10	0.035	(0.115)	0.012	0.023
230	19.17	0.10	0.035	(0.115)	0.012	0.023
231	19.25	0.10	0.035	(0.114)	0.012	0.023
232	19.33	0.13	0.047	(0.114)	0.016	0.031
233	19.42	0.13	0.047	(0.113)	0.016	0.031
234	19.50	0.13	0.047	(0.113)	0.016	0.031
235	19.58	0.10	0.035	(0.112)	0.012	0.023
236	19.67	0.10	0.035	(0.112)	0.012	0.023
237	19.75	0.10	0.035	(0.111)	0.012	0.023
238	19.83	0.07	0.023	(0.111)	0.008	0.015
239	19.92	0.07	0.023	(0.110)	0.008	0.015
240	20.00	0.07	0.023	(0.110)	0.008	0.015
241	20.08	0.10	0.035	(0.109)	0.012	0.023
242	20.17	0.10	0.035	(0.109)	0.012	0.023
243	20.25	0.10	0.035	(0.108)	0.012	0.023
244	20.33	0.10	0.035	(0.108)	0.012	0.023
245	20.42	0.10	0.035	(0.107)	0.012	0.023
246	20.50	0.10	0.035	(0.107)	0.012	0.023
247	20.58	0.10	0.035	(0.106)	0.012	0.023
248	20.67	0.10	0.035	(0.106)	0.012	0.023
249	20.75	0.10	0.035	(0.106)	0.012	0.023
250	20.83	0.07	0.023	(0.105)	0.008	0.015
251	20.92	0.07	0.023	(0.105)	0.008	0.015
252	21.00	0.07	0.023	(0.104)	0.008	0.015
253	21.08	0.10	0.035	(0.104)	0.012	0.023
254	21.17	0.10	0.035	(0.103)	0.012	0.023
255	21.25	0.10	0.035	(0.103)	0.012	0.023
256	21.33	0.07	0.023	(0.103)	0.008	0.015
257	21.42	0.07	0.023	(0.102)	0.008	0.015
258	21.50	0.07	0.023	(0.102)	0.008	0.015
259	21.58	0.10	0.035	(0.102)	0.012	0.023
260	21.67	0.10	0.035	(0.101)	0.012	0.023
261	21.75	0.10	0.035	(0.101)	0.012	0.023
262	21.83	0.07	0.023	(0.100)	0.008	0.015
263	21.92	0.07	0.023	(0.100)	0.008	0.015
264	22.00	0.07	0.023	(0.100)	0.008	0.015
265	22.08	0.10	0.035	(0.099)	0.012	0.023
266	22.17	0.10	0.035	(0.099)	0.012	0.023
267	22.25	0.10	0.035	(0.099)	0.012	0.023
268	22.33	0.07	0.023	(0.099)	0.008	0.015

269	22.42	0.07	0.023	(0.098)	0.008	0.015
270	22.50	0.07	0.023	(0.098)	0.008	0.015
271	22.58	0.07	0.023	(0.098)	0.008	0.015
272	22.67	0.07	0.023	(0.097)	0.008	0.015
273	22.75	0.07	0.023	(0.097)	0.008	0.015
274	22.83	0.07	0.023	(0.097)	0.008	0.015
275	22.92	0.07	0.023	(0.097)	0.008	0.015
276	23.00	0.07	0.023	(0.096)	0.008	0.015
277	23.08	0.07	0.023	(0.096)	0.008	0.015
278	23.17	0.07	0.023	(0.096)	0.008	0.015
279	23.25	0.07	0.023	(0.096)	0.008	0.015
280	23.33	0.07	0.023	(0.096)	0.008	0.015
281	23.42	0.07	0.023	(0.095)	0.008	0.015
282	23.50	0.07	0.023	(0.095)	0.008	0.015
283	23.58	0.07	0.023	(0.095)	0.008	0.015
284	23.67	0.07	0.023	(0.095)	0.008	0.015
285	23.75	0.07	0.023	(0.095)	0.008	0.015
286	23.83	0.07	0.023	(0.095)	0.008	0.015
287	23.92	0.07	0.023	(0.095)	0.008	0.015
288	24.00	0.07	0.023	(0.095)	0.008	0.015

(Loss Rate Not Used)

Sum = 100.0 Sum = 23.1

Flood volume = Effective rainfall 1.92(In)
 times area 1.7(Ac.)/[(In)/(Ft.)] = 0.3(Ac.Ft)
 Total soil loss = 0.99(In)
 Total soil loss = 0.139(Ac.Ft)
 Total rainfall = 2.91(In)
 Flood volume = 11715.8 Cubic Feet
 Total soil loss = 6035.4 Cubic Feet

 Peak flow rate of this hydrograph = 0.443(CFS)

+++++

24 - H O U R S T O R M
 R u n o f f H y d r o g r a p h

 Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0001	0.02	Q				
0+10	0.0003	0.03	Q				
0+15	0.0005	0.03	Q				
0+20	0.0007	0.04	Q				
0+25	0.0010	0.04	Q				
0+30	0.0013	0.04	Q				
0+35	0.0015	0.04	Q				
0+40	0.0018	0.04	Q				
0+45	0.0021	0.04	Q				
0+50	0.0024	0.05	Q				
0+55	0.0028	0.05	Q				
1+ 0	0.0031	0.05	Q				
1+ 5	0.0034	0.04	Q				
1+10	0.0037	0.04	Q				
1+15	0.0040	0.04	Q				
1+20	0.0042	0.04	Q				
1+25	0.0045	0.04	Q				
1+30	0.0048	0.04	Q				
1+35	0.0050	0.04	Q				
1+40	0.0053	0.04	Q				
1+45	0.0056	0.04	Q				
1+50	0.0059	0.05	Q				
1+55	0.0063	0.05	Q				
2+ 0	0.0066	0.05	Q				
2+ 5	0.0070	0.05	QV				
2+10	0.0073	0.05	QV				
2+15	0.0077	0.05	QV				
2+20	0.0081	0.05	QV				
2+25	0.0084	0.05	QV				
2+30	0.0088	0.05	QV				
2+35	0.0092	0.06	QV				
2+40	0.0096	0.07	QV				
2+45	0.0101	0.07	QV				

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2+50	0.0105	0.07	QV				
2+55	0.0110	0.07	QV				
3+ 0	0.0114	0.07	QV				
3+ 5	0.0119	0.07	QV				
3+10	0.0123	0.07	QV				
3+15	0.0128	0.07	QV				
3+20	0.0132	0.07	QV				
3+25	0.0137	0.07	Q V				
3+30	0.0141	0.07	Q V				
3+35	0.0146	0.07	Q V				
3+40	0.0150	0.07	Q V				
3+45	0.0155	0.07	Q V				
3+50	0.0160	0.07	Q V				
3+55	0.0165	0.08	Q V				
4+ 0	0.0171	0.08	Q V				
4+ 5	0.0176	0.08	Q V				
4+10	0.0181	0.08	Q V				
4+15	0.0187	0.08	Q V				
4+20	0.0193	0.09	Q V				
4+25	0.0199	0.09	Q V				
4+30	0.0205	0.09	Q V				
4+35	0.0212	0.09	Q V				
4+40	0.0218	0.09	Q V				
4+45	0.0224	0.09	Q V				
4+50	0.0231	0.10	Q V				
4+55	0.0238	0.10	Q V				
5+ 0	0.0245	0.10	Q V				
5+ 5	0.0251	0.09	Q V				
5+10	0.0257	0.08	Q V				
5+15	0.0262	0.08	Q V				
5+20	0.0268	0.09	Q V				
5+25	0.0274	0.09	Q V				
5+30	0.0281	0.09	Q V				
5+35	0.0288	0.10	Q V				
5+40	0.0295	0.10	Q V				
5+45	0.0302	0.10	Q V				
5+50	0.0309	0.10	Q V				
5+55	0.0316	0.10	Q V				
6+ 0	0.0323	0.10	Q V				
6+ 5	0.0331	0.11	Q V				
6+10	0.0339	0.12	Q V				
6+15	0.0347	0.12	Q V				
6+20	0.0355	0.12	Q V				
6+25	0.0364	0.12	Q V				
6+30	0.0372	0.12	Q V				
6+35	0.0380	0.13	Q V				
6+40	0.0389	0.13	Q V				
6+45	0.0398	0.13	Q V				
6+50	0.0407	0.13	Q V				
6+55	0.0416	0.13	Q V				
7+ 0	0.0425	0.13	Q V				
7+ 5	0.0434	0.13	Q V				
7+10	0.0443	0.13	Q V				
7+15	0.0452	0.13	Q V				
7+20	0.0462	0.14	Q V				
7+25	0.0471	0.14	Q V				
7+30	0.0481	0.14	Q V				
7+35	0.0492	0.15	Q V				
7+40	0.0503	0.16	Q V				
7+45	0.0513	0.16	Q V				
7+50	0.0525	0.17	Q V				
7+55	0.0536	0.17	Q V				
8+ 0	0.0548	0.17	Q V				
8+ 5	0.0561	0.19	Q V				
8+10	0.0574	0.20	Q V				
8+15	0.0588	0.20	Q V				
8+20	0.0601	0.20	Q V				
8+25	0.0615	0.20	Q V				
8+30	0.0628	0.20	Q V				
8+35	0.0642	0.20	Q V				
8+40	0.0657	0.21	Q V				
8+45	0.0671	0.21	Q V				
8+50	0.0686	0.22	Q V				
8+55	0.0701	0.22	Q V				

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9+ 0	0.0717	0.22	Q	V					
9+ 5	0.0733	0.24	Q	V					
9+10	0.0750	0.25	Q	V					
9+15	0.0767	0.25	Q	V					
9+20	0.0785	0.26	Q	V					
9+25	0.0803	0.26	Q	V					
9+30	0.0821	0.26	Q	V					
9+35	0.0839	0.27	Q	V					
9+40	0.0858	0.27	Q	V					
9+45	0.0877	0.27	Q	V					
9+50	0.0896	0.28	Q	V					
9+55	0.0916	0.29	Q	V					
10+ 0	0.0936	0.29	Q	V					
10+ 5	0.0951	0.22	Q	V					
10+10	0.0964	0.20	Q	V					
10+15	0.0978	0.20	Q	V					
10+20	0.0991	0.20	Q	V					
10+25	0.1005	0.20	Q	V					
10+30	0.1018	0.20	Q	V					
10+35	0.1035	0.24	Q	V					
10+40	0.1053	0.26	Q	V					
10+45	0.1071	0.26	Q	V					
10+50	0.1089	0.26	Q	V					
10+55	0.1107	0.26	Q	V					
11+ 0	0.1125	0.26	Q	V					
11+ 5	0.1142	0.25	Q	V					
11+10	0.1159	0.25	Q	V					
11+15	0.1176	0.25	Q	V					
11+20	0.1193	0.25	Q	V					
11+25	0.1210	0.25	Q	V					
11+30	0.1227	0.25	Q	V					
11+35	0.1243	0.23	Q	V					
11+40	0.1258	0.22	Q	V					
11+45	0.1273	0.22	Q	V					
11+50	0.1289	0.23	Q	V					
11+55	0.1305	0.23	Q	V					
12+ 0	0.1321	0.23	Q	V					
12+ 5	0.1342	0.30	Q	V					
12+10	0.1364	0.33	Q	V					
12+15	0.1387	0.33	Q	V					
12+20	0.1410	0.33	Q	V					
12+25	0.1433	0.34	Q	V					
12+30	0.1457	0.34	Q	V					
12+35	0.1481	0.36	Q	V					
12+40	0.1506	0.36	Q	V					
12+45	0.1531	0.36	Q	V					
12+50	0.1557	0.37	Q	V					
12+55	0.1583	0.38	Q	V					
13+ 0	0.1609	0.38	Q	V					
13+ 5	0.1638	0.42	Q	V					
13+10	0.1669	0.44	Q	V					
13+15	0.1699	0.44	Q	V					
13+20	0.1730	0.44	Q	V					
13+25	0.1760	0.44	Q	V					
13+30	0.1791	0.44	Q	V					
13+35	0.1814	0.34	Q	V					
13+40	0.1835	0.30	Q	V					
13+45	0.1855	0.30	Q	V					
13+50	0.1876	0.30	Q	V					
13+55	0.1897	0.30	Q	V					
14+ 0	0.1917	0.30	Q	V					
14+ 5	0.1940	0.34	Q	V					
14+10	0.1965	0.35	Q	V					
14+15	0.1989	0.35	Q	V					
14+20	0.2012	0.34	Q	V					
14+25	0.2036	0.34	Q	V					
14+30	0.2059	0.34	Q	V					
14+35	0.2082	0.34	Q	V					
14+40	0.2106	0.34	Q	V					
14+45	0.2129	0.34	Q	V					
14+50	0.2152	0.33	Q	V					
14+55	0.2174	0.33	Q	V					
15+ 0	0.2196	0.33	Q	V					
15+ 5	0.2218	0.32	Q	V					

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

15+10	0.2240	0.31	Q				V
15+15	0.2261	0.31	Q				V
15+20	0.2282	0.30	Q				V
15+25	0.2303	0.30	Q				V
15+30	0.2323	0.30	Q				V
15+35	0.2341	0.26	Q				V
15+40	0.2358	0.25	Q				V
15+45	0.2375	0.25	Q				V
15+50	0.2393	0.25	Q				V
15+55	0.2410	0.25	Q				V
16+ 0	0.2427	0.25	Q				V
16+ 5	0.2434	0.11	Q				V
16+10	0.2438	0.05	Q				V
16+15	0.2441	0.05	Q				V
16+20	0.2445	0.05	Q				V
16+25	0.2448	0.05	Q				V
16+30	0.2452	0.05	Q				V
16+35	0.2455	0.04	Q				V
16+40	0.2458	0.04	Q				V
16+45	0.2460	0.04	Q				V
16+50	0.2463	0.04	Q				V
16+55	0.2466	0.04	Q				V
17+ 0	0.2468	0.04	Q				V
17+ 5	0.2472	0.06	Q				V
17+10	0.2477	0.07	Q				V
17+15	0.2481	0.07	Q				V
17+20	0.2486	0.07	Q				V
17+25	0.2490	0.07	Q				V
17+30	0.2495	0.07	Q				V
17+35	0.2499	0.07	Q				V
17+40	0.2504	0.07	Q				V
17+45	0.2508	0.07	Q				V
17+50	0.2512	0.06	Q				V
17+55	0.2516	0.05	Q				V
18+ 0	0.2519	0.05	Q				V
18+ 5	0.2523	0.05	Q				V
18+10	0.2526	0.05	Q				V
18+15	0.2530	0.05	Q				V
18+20	0.2533	0.05	Q				V
18+25	0.2537	0.05	Q				V
18+30	0.2541	0.05	Q				V
18+35	0.2544	0.04	Q				V
18+40	0.2546	0.04	Q				V
18+45	0.2549	0.04	Q				V
18+50	0.2551	0.03	Q				V
18+55	0.2553	0.03	Q				V
19+ 0	0.2555	0.03	Q				V
19+ 5	0.2557	0.04	Q				V
19+10	0.2560	0.04	Q				V
19+15	0.2562	0.04	Q				V
19+20	0.2566	0.05	Q				V
19+25	0.2569	0.05	Q				V
19+30	0.2573	0.05	Q				V
19+35	0.2576	0.04	Q				V
19+40	0.2579	0.04	Q				V
19+45	0.2581	0.04	Q				V
19+50	0.2583	0.03	Q				V
19+55	0.2585	0.03	Q				V
20+ 0	0.2587	0.03	Q				V
20+ 5	0.2589	0.04	Q				V
20+10	0.2592	0.04	Q				V
20+15	0.2595	0.04	Q				V
20+20	0.2597	0.04	Q				V
20+25	0.2600	0.04	Q				V
20+30	0.2603	0.04	Q				V
20+35	0.2605	0.04	Q				V
20+40	0.2608	0.04	Q				V
20+45	0.2611	0.04	Q				V
20+50	0.2613	0.03	Q				V
20+55	0.2615	0.03	Q				V
21+ 0	0.2616	0.03	Q				V
21+ 5	0.2619	0.04	Q				V
21+10	0.2622	0.04	Q				V
21+15	0.2624	0.04	Q				V

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

21+20	0.2626	0.03	Q				V
21+25	0.2628	0.03	Q				V
21+30	0.2630	0.03	Q				V
21+35	0.2632	0.04	Q				V
21+40	0.2635	0.04	Q				V
21+45	0.2638	0.04	Q				V
21+50	0.2640	0.03	Q				V
21+55	0.2642	0.03	Q				V
22+ 0	0.2643	0.03	Q				V
22+ 5	0.2646	0.04	Q				V
22+10	0.2648	0.04	Q				V
22+15	0.2651	0.04	Q				V
22+20	0.2653	0.03	Q				V
22+25	0.2655	0.03	Q				V
22+30	0.2657	0.03	Q				V
22+35	0.2659	0.03	Q				V
22+40	0.2660	0.03	Q				V
22+45	0.2662	0.03	Q				V
22+50	0.2664	0.03	Q				V
22+55	0.2666	0.03	Q				V
23+ 0	0.2668	0.03	Q				V
23+ 5	0.2669	0.03	Q				V
23+10	0.2671	0.03	Q				V
23+15	0.2673	0.03	Q				V
23+20	0.2675	0.03	Q				V
23+25	0.2677	0.03	Q				V
23+30	0.2678	0.03	Q				V
23+35	0.2680	0.03	Q				V
23+40	0.2682	0.03	Q				V
23+45	0.2684	0.03	Q				V
23+50	0.2685	0.03	Q				V
23+55	0.2687	0.03	Q				V
24+ 0	0.2689	0.03	Q				V
24+ 5	0.2690	0.01	Q				V

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

- **Area 'A' – 100 Year 1 Hour Post-Development Condition – Unit Hydrograph**

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Unit Hydrograph Analysis

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 Study date 07/23/20 File: pr1001100.out

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Riverside County Synthetic Unit Hydrology Method
 RCFC & WCD Manual date - April 1978

Program License Serial Number 6407

 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

English Units used in output format

 FARM MARKET EXPANSION
 PROPOSED CONDITION UNIT HYDROGRAPH - 100 YEAR 1 HOUR STORM
 WMB & ASSOCIATES, JULY 2020
 BY: BRIAN LOWELL, PE

 Drainage Area = 1.68(Ac.) = 0.003 Sq. Mi.
 Drainage Area for Depth-Area Areal Adjustment = 1.68(Ac.) = 0.003 Sq. Mi.
 Length along longest watercourse = 483.00(Ft.)
 Length along longest watercourse measured to centroid = 149.00(Ft.)
 Length along longest watercourse = 0.091 Mi.
 Length along longest watercourse measured to centroid = 0.028 Mi.
 Difference in elevation = 7.90(Ft.)
 Slope along watercourse = 86.3602 Ft./Mi.
 Average Manning's 'N' = 0.015
 Lag time = 0.016 Hr.
 Lag time = 0.96 Min.
 25% of lag time = 0.24 Min.
 40% of lag time = 0.38 Min.
 Unit time = 5.00 Min.
 Duration of storm = 1 Hour(s)
 User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
1.68	0.50	0.84

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
1.68	1.20	2.02

STORM EVENT (YEAR) = 100.00
 Area Averaged 2-Year Rainfall = 0.500(In)
 Area Averaged 100-Year Rainfall = 1.200(In)

Point rain (area averaged) = 1.200(In)
 Areal adjustment factor = 100.00 %
 Adjusted average point rain = 1.200(In)

Sub-Area Data:
 Area(Ac.) Runoff Index Impervious %
 1.680 56.00 0.700
 Total Area Entered = 1.68(Ac.)

RI	RI	Infil. Rate	Impervious	Adj. Infil. Rate	Area%	F
AMC2	AMC-3	(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
56.0	74.8	0.305	0.700	0.113	1.000	0.113
						Sum (F) = 0.113

Area averaged mean soil loss (F) (In/Hr) = 0.113

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Minimum soil loss rate ((In/Hr)) = 0.056
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.340

Slope of intensity-duration curve for a 1 hour storm =0.5000

Unit Hydrograph
 VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	519.885	71.883
2	0.167	1039.769	28.117
		Sum = 100.000	Sum= 1.693

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Loss rate(In./Hr) Low	Effective (In/Hr)
1	0.08	4.20	0.605	0.113 (0.206)	0.492
2	0.17	4.30	0.619	0.113 (0.211)	0.506
3	0.25	5.00	0.720	0.113 (0.245)	0.607
4	0.33	5.00	0.720	0.113 (0.245)	0.607
5	0.42	5.80	0.835	0.113 (0.284)	0.722
6	0.50	6.50	0.936	0.113 (0.318)	0.823
7	0.58	7.40	1.066	0.113 (0.362)	0.953
8	0.67	8.60	1.238	0.113 (0.421)	1.125
9	0.75	12.30	1.771	0.113 (0.602)	1.658
10	0.83	29.10	4.190	0.113 (1.425)	4.077
11	0.92	6.80	0.979	0.113 (0.333)	0.866
12	1.00	5.00	0.720	0.113 (0.245)	0.607

(Loss Rate Not Used)
 Sum = 100.0 Sum = 13.0

Flood volume = Effective rainfall 1.09(In)
 times area 1.7(Ac.)/[(In)/(Ft.)] = 0.2(Ac.Ft)
 Total soil loss = 0.11(In)
 Total soil loss = 0.016(Ac.Ft)
 Total rainfall = 1.20(In)
 Flood volume = 6629.0 Cubic Feet
 Total soil loss = 689.0 Cubic Feet

Peak flow rate of this hydrograph = 5.755(CFS)

1 - H O U R S T O R M
 R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0041	0.60	VQ				
0+10	0.0100	0.85	VQ				
0+15	0.0167	0.98	QV				
0+20	0.0238	1.03	Q V				
0+25	0.0319	1.17	Q V				
0+30	0.0411	1.35	Q V				
0+35	0.0518	1.55	Q V				
0+40	0.0644	1.82	Q V				
0+45	0.0820	2.56	Q V				
0+50	0.1216	5.75	Q V				
0+55	0.1423	3.00	Q V				
1+ 0	0.1502	1.15	Q V				
1+ 5	0.1522	0.29	Q V				

- **Area 'A' – 100 Year 3 Hour Post-Development Condition – Unit Hydrograph**

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
 Study date 07/23/20 File: pr1003100.out

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Riverside County Synthetic Unit Hydrology Method
 RCFC & WCD Manual date - April 1978

Program License Serial Number 6407

English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

English Units used in output format

FARM MARKET EXPANSION
 PROPOSED CONDITION UNIT HYDROGRAPH - 100 YEAR 3 HOUR STORM
 WMB & ASSOCIATES, JULY 2020
 BY: BRIAN LOWELL, PE

 Drainage Area = 1.68(Ac.) = 0.003 Sq. Mi.
 Drainage Area for Depth-Area Areal Adjustment = 1.68(Ac.) = 0.003 Sq. Mi.
 Length along longest watercourse = 483.00(Ft.)
 Length along longest watercourse measured to centroid = 149.00(Ft.)
 Length along longest watercourse = 0.091 Mi.
 Length along longest watercourse measured to centroid = 0.028 Mi.
 Difference in elevation = 7.90(Ft.)
 Slope along watercourse = 86.3602 Ft./Mi.
 Average Manning's 'N' = 0.015
 Lag time = 0.016 Hr.
 Lag time = 0.96 Min.
 25% of lag time = 0.24 Min.
 40% of lag time = 0.38 Min.
 Unit time = 5.00 Min.
 Duration of storm = 3 Hour(s)
 User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
1.68	0.80	1.34

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
1.68	1.80	3.02

STORM EVENT (YEAR) = 100.00
 Area Averaged 2-Year Rainfall = 0.800(In)
 Area Averaged 100-Year Rainfall = 1.800(In)

Point rain (area averaged) = 1.800(In)
 Areal adjustment factor = 100.00 %
 Adjusted average point rain = 1.800(In)

Sub-Area Data:
 Area(Ac.) Runoff Index Impervious %
 1.680 56.00 0.700
 Total Area Entered = 1.68(Ac.)

RI RI Infil. Rate Impervious Adj. Infil. Rate Area% F

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Peak flow rate of this hydrograph = 2.716(CFS)

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3 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0016	0.23	Q				
0+10	0.0037	0.31	VQ				
0+15	0.0056	0.28	Q				
0+20	0.0079	0.34	Q				
0+25	0.0104	0.36	QV				
0+30	0.0135	0.44	QV				
0+35	0.0162	0.39	Q V				
0+40	0.0192	0.44	Q V				
0+45	0.0224	0.47	Q V				
0+50	0.0251	0.39	Q V				
0+55	0.0277	0.39	Q V				
1+ 0	0.0308	0.45	Q V				
1+ 5	0.0348	0.57	Q V				
1+10	0.0390	0.61	Q V				
1+15	0.0432	0.61	Q V				
1+20	0.0471	0.56	Q V				
1+25	0.0519	0.70	Q V				
1+30	0.0573	0.79	Q V				
1+35	0.0622	0.72	Q V				
1+40	0.0675	0.77	Q V				
1+45	0.0741	0.95	Q V				
1+50	0.0807	0.96	Q V				
1+55	0.0868	0.89	Q V				
2+ 0	0.0930	0.90	Q V				
2+ 5	0.0994	0.93	Q V				
2+10	0.1079	1.23	Q V				
2+15	0.1186	1.56	Q V				
2+20	0.1272	1.24	Q V				
2+25	0.1407	1.96	Q V				
2+30	0.1574	2.43	Q V				
2+35	0.1761	2.72	Q V				
2+40	0.1913	2.20	Q V				
2+45	0.1978	0.94	Q V				
2+50	0.2011	0.49	Q V				
2+55	0.2044	0.47	Q V				
3+ 0	0.2060	0.24	Q V				
3+ 5	0.2063	0.04	Q V				

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

- **Area 'A' – 100 Year 6 Hour Post-Development Condition – Unit Hydrograph**

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Unit Hydrograph Analysis

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 Study date 07/23/20 File: pr1006100.out

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Riverside County Synthetic Unit Hydrology Method
 RCFC & WCD Manual date - April 1978

Program License Serial Number 6407

English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

English Units used in output format

FARM MARKET EXPANSION
 PROPOSED CONDITION UNIT HYDROGRAPH - 100 YEAR 6 HOUR STORM
 WMB & ASSOCIATES, JULY 2020
 BY: BRIAN LOWELL, PE

Drainage Area = 1.68(Ac.) = 0.003 Sq. Mi.
 Drainage Area for Depth-Area Areal Adjustment = 1.68(Ac.) = 0.003 Sq. Mi.
 Length along longest watercourse = 483.00(Ft.)
 Length along longest watercourse measured to centroid = 149.00(Ft.)
 Length along longest watercourse = 0.091 Mi.
 Length along longest watercourse measured to centroid = 0.028 Mi.
 Difference in elevation = 7.90(Ft.)
 Slope along watercourse = 86.3602 Ft./Mi.
 Average Manning's 'N' = 0.015
 Lag time = 0.016 Hr.
 Lag time = 0.96 Min.
 25% of lag time = 0.24 Min.
 40% of lag time = 0.38 Min.
 Unit time = 5.00 Min.
 Duration of storm = 6 Hour(s)
 User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
1.68	1.20	2.02

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
1.68	2.50	4.20

STORM EVENT (YEAR) = 100.00
 Area Averaged 2-Year Rainfall = 1.200(In)
 Area Averaged 100-Year Rainfall = 2.500(In)

Point rain (area averaged) = 2.500(In)
 Areal adjustment factor = 100.00 %
 Adjusted average point rain = 2.500(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
1.680	56.00	0.700
Total Area Entered = 1.68(Ac.)		

RI RI Infil. Rate Impervious Adj. Infil. Rate Area% F

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

AMC2	AMC-3	(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
56.0	74.8	0.305	0.700	0.113	1.000	0.113
						Sum (F) = 0.113

Area averaged mean soil loss (F) (In/Hr) = 0.113
 Minimum soil loss rate ((In/Hr)) = 0.056
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.340

Unit Hydrograph
 VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	519.885	71.883
2	0.167	1039.769	28.117
		Sum = 100.000	Sum= 1.693

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr)		Effective (In/Hr)
				Max	Low	
1	0.08	0.50	0.150	(0.113)	0.051	0.099
2	0.17	0.60	0.180	(0.113)	0.061	0.119
3	0.25	0.60	0.180	(0.113)	0.061	0.119
4	0.33	0.60	0.180	(0.113)	0.061	0.119
5	0.42	0.60	0.180	(0.113)	0.061	0.119
6	0.50	0.70	0.210	(0.113)	0.071	0.139
7	0.58	0.70	0.210	(0.113)	0.071	0.139
8	0.67	0.70	0.210	(0.113)	0.071	0.139
9	0.75	0.70	0.210	(0.113)	0.071	0.139
10	0.83	0.70	0.210	(0.113)	0.071	0.139
11	0.92	0.70	0.210	(0.113)	0.071	0.139
12	1.00	0.80	0.240	(0.113)	0.082	0.158
13	1.08	0.80	0.240	(0.113)	0.082	0.158
14	1.17	0.80	0.240	(0.113)	0.082	0.158
15	1.25	0.80	0.240	(0.113)	0.082	0.158
16	1.33	0.80	0.240	(0.113)	0.082	0.158
17	1.42	0.80	0.240	(0.113)	0.082	0.158
18	1.50	0.80	0.240	(0.113)	0.082	0.158
19	1.58	0.80	0.240	(0.113)	0.082	0.158
20	1.67	0.80	0.240	(0.113)	0.082	0.158
21	1.75	0.80	0.240	(0.113)	0.082	0.158
22	1.83	0.80	0.240	(0.113)	0.082	0.158
23	1.92	0.80	0.240	(0.113)	0.082	0.158
24	2.00	0.90	0.270	(0.113)	0.092	0.178
25	2.08	0.80	0.240	(0.113)	0.082	0.158
26	2.17	0.90	0.270	(0.113)	0.092	0.178
27	2.25	0.90	0.270	(0.113)	0.092	0.178
28	2.33	0.90	0.270	(0.113)	0.092	0.178
29	2.42	0.90	0.270	(0.113)	0.092	0.178
30	2.50	0.90	0.270	(0.113)	0.092	0.178
31	2.58	0.90	0.270	(0.113)	0.092	0.178
32	2.67	0.90	0.270	(0.113)	0.092	0.178
33	2.75	1.00	0.300	(0.113)	0.102	0.198
34	2.83	1.00	0.300	(0.113)	0.102	0.198
35	2.92	1.00	0.300	(0.113)	0.102	0.198
36	3.00	1.00	0.300	(0.113)	0.102	0.198
37	3.08	1.00	0.300	(0.113)	0.102	0.198
38	3.17	1.10	0.330	(0.113)	0.112	0.218
39	3.25	1.10	0.330	(0.113)	0.112	0.218
40	3.33	1.10	0.330	(0.113)	0.112	0.218
41	3.42	1.20	0.360	0.113	(0.122)	0.247
42	3.50	1.30	0.390	0.113	(0.133)	0.277
43	3.58	1.40	0.420	0.113	(0.143)	0.307
44	3.67	1.40	0.420	0.113	(0.143)	0.307
45	3.75	1.50	0.450	0.113	(0.153)	0.337
46	3.83	1.50	0.450	0.113	(0.153)	0.337

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

47	3.92	1.60	0.480	0.113	(0.163)	0.367
48	4.00	1.60	0.480	0.113	(0.163)	0.367
49	4.08	1.70	0.510	0.113	(0.173)	0.397
50	4.17	1.80	0.540	0.113	(0.184)	0.427
51	4.25	1.90	0.570	0.113	(0.194)	0.457
52	4.33	2.00	0.600	0.113	(0.204)	0.487
53	4.42	2.10	0.630	0.113	(0.214)	0.517
54	4.50	2.10	0.630	0.113	(0.214)	0.517
55	4.58	2.20	0.660	0.113	(0.224)	0.547
56	4.67	2.30	0.690	0.113	(0.235)	0.577
57	4.75	2.40	0.720	0.113	(0.245)	0.607
58	4.83	2.40	0.720	0.113	(0.245)	0.607
59	4.92	2.50	0.750	0.113	(0.255)	0.637
60	5.00	2.60	0.780	0.113	(0.265)	0.667
61	5.08	3.10	0.930	0.113	(0.316)	0.817
62	5.17	3.60	1.080	0.113	(0.367)	0.967
63	5.25	3.90	1.170	0.113	(0.398)	1.057
64	5.33	4.20	1.260	0.113	(0.428)	1.147
65	5.42	4.70	1.410	0.113	(0.479)	1.297
66	5.50	5.60	1.680	0.113	(0.571)	1.567
67	5.58	1.90	0.570	0.113	(0.194)	0.457
68	5.67	0.90	0.270	(0.113)	0.092	0.178
69	5.75	0.60	0.180	(0.113)	0.061	0.119
70	5.83	0.50	0.150	(0.113)	0.051	0.099
71	5.92	0.30	0.090	(0.113)	0.031	0.059
72	6.00	0.20	0.060	(0.113)	0.020	0.040

(Loss Rate Not Used)

Sum = 100.0 Sum = 23.3

Flood volume = Effective rainfall 1.94(In)
 times area 1.7(Ac.)/[(In)/(Ft.)] = 0.3(Ac.Ft)
 Total soil loss = 0.56(In)
 Total soil loss = 0.078(Ac.Ft)
 Total rainfall = 2.50(In)
 Flood volume = 11855.4 Cubic Feet
 Total soil loss = 3390.5 Cubic Feet

 Peak flow rate of this hydrograph = 2.526(CFS)

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6 - H O U R S T O R M
 R u n o f f H y d r o g r a p h

 Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0008	0.12	Q				
0+10	0.0022	0.19	Q				
0+15	0.0035	0.20	Q				
0+20	0.0049	0.20	Q				
0+25	0.0063	0.20	Q				
0+30	0.0079	0.23	QV				
0+35	0.0095	0.23	QV				
0+40	0.0111	0.23	QV				
0+45	0.0127	0.23	QV				
0+50	0.0143	0.23	Q V				
0+55	0.0159	0.23	Q V				
1+ 0	0.0177	0.26	QV				
1+ 5	0.0196	0.27	QV				
1+10	0.0214	0.27	Q V				
1+15	0.0233	0.27	Q V				
1+20	0.0251	0.27	Q V				
1+25	0.0270	0.27	Q V				
1+30	0.0288	0.27	Q V				
1+35	0.0307	0.27	Q V				
1+40	0.0325	0.27	Q V				
1+45	0.0344	0.27	Q V				
1+50	0.0362	0.27	Q V				
1+55	0.0381	0.27	Q V				
2+ 0	0.0401	0.29	Q V				
2+ 5	0.0420	0.28	Q V				
2+10	0.0440	0.29	Q V				
2+15	0.0461	0.30	Q V				

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

- **Area 'A' – 100 Year 24 Hour Post-Development Condition – Unit Hydrograph**

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
Study date 07/23/20 File: pr10024100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6407

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

FARM MARKET EXPANSION
PROPOSED CONDITION UNIT HYDROGRAPH - 100 YEAR 24 HOUR STORM
WMB & ASSOCIATES, JULY 2020
BY: BRIAN LOWELL, PE

Drainage Area = 1.68(Ac.) = 0.003 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 1.68(Ac.) = 0.003 Sq. Mi.
Length along longest watercourse = 483.00(Ft.)
Length along longest watercourse measured to centroid = 149.00(Ft.)
Length along longest watercourse = 0.091 Mi.
Length along longest watercourse measured to centroid = 0.028 Mi.
Difference in elevation = 7.90(Ft.)
Slope along watercourse = 86.3602 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.016 Hr.
Lag time = 0.96 Min.
25% of lag time = 0.24 Min.
40% of lag time = 0.38 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]
1.68 1.80 3.02

100 YEAR Area rainfall data:

Area(Ac.)[1] Rainfall(In)[2] Weighting[1*2]
1.68 4.50 7.56

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 1.800(In)
Area Averaged 100-Year Rainfall = 4.500(In)

Point rain (area averaged) = 4.500(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 4.500(In)

Sub-Area Data:
Area(Ac.) Runoff Index Impervious %
1.680 56.00 0.700
Total Area Entered = 1.68(Ac.)

RI RI Infil. Rate Impervious Adj. Infil. Rate Area% F

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

AMC2	AMC-3	(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
56.0	74.8	0.305	0.700	0.113	1.000	0.113
						Sum (F) = 0.113

Area averaged mean soil loss (F) (In/Hr) = 0.113
 Minimum soil loss rate ((In/Hr)) = 0.056
 (for 24 hour storm duration)
 Soil loss rate (decimal) = 0.340

Unit Hydrograph
 VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	519.885	71.883
2	0.167	1039.769	28.117
		Sum = 100.000	Sum= 1.693

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr)		Effective (In/Hr)
				Max	Low	
1	0.08	0.07	0.036	(0.200)	0.012	0.024
2	0.17	0.07	0.036	(0.200)	0.012	0.024
3	0.25	0.07	0.036	(0.199)	0.012	0.024
4	0.33	0.10	0.054	(0.198)	0.018	0.036
5	0.42	0.10	0.054	(0.197)	0.018	0.036
6	0.50	0.10	0.054	(0.196)	0.018	0.036
7	0.58	0.10	0.054	(0.196)	0.018	0.036
8	0.67	0.10	0.054	(0.195)	0.018	0.036
9	0.75	0.10	0.054	(0.194)	0.018	0.036
10	0.83	0.13	0.072	(0.193)	0.024	0.048
11	0.92	0.13	0.072	(0.193)	0.024	0.048
12	1.00	0.13	0.072	(0.192)	0.024	0.048
13	1.08	0.10	0.054	(0.191)	0.018	0.036
14	1.17	0.10	0.054	(0.190)	0.018	0.036
15	1.25	0.10	0.054	(0.190)	0.018	0.036
16	1.33	0.10	0.054	(0.189)	0.018	0.036
17	1.42	0.10	0.054	(0.188)	0.018	0.036
18	1.50	0.10	0.054	(0.187)	0.018	0.036
19	1.58	0.10	0.054	(0.187)	0.018	0.036
20	1.67	0.10	0.054	(0.186)	0.018	0.036
21	1.75	0.10	0.054	(0.185)	0.018	0.036
22	1.83	0.13	0.072	(0.184)	0.024	0.048
23	1.92	0.13	0.072	(0.184)	0.024	0.048
24	2.00	0.13	0.072	(0.183)	0.024	0.048
25	2.08	0.13	0.072	(0.182)	0.024	0.048
26	2.17	0.13	0.072	(0.181)	0.024	0.048
27	2.25	0.13	0.072	(0.181)	0.024	0.048
28	2.33	0.13	0.072	(0.180)	0.024	0.048
29	2.42	0.13	0.072	(0.179)	0.024	0.048
30	2.50	0.13	0.072	(0.178)	0.024	0.048
31	2.58	0.17	0.090	(0.178)	0.031	0.059
32	2.67	0.17	0.090	(0.177)	0.031	0.059
33	2.75	0.17	0.090	(0.176)	0.031	0.059
34	2.83	0.17	0.090	(0.176)	0.031	0.059
35	2.92	0.17	0.090	(0.175)	0.031	0.059
36	3.00	0.17	0.090	(0.174)	0.031	0.059
37	3.08	0.17	0.090	(0.173)	0.031	0.059
38	3.17	0.17	0.090	(0.173)	0.031	0.059
39	3.25	0.17	0.090	(0.172)	0.031	0.059
40	3.33	0.17	0.090	(0.171)	0.031	0.059
41	3.42	0.17	0.090	(0.170)	0.031	0.059
42	3.50	0.17	0.090	(0.170)	0.031	0.059
43	3.58	0.17	0.090	(0.169)	0.031	0.059
44	3.67	0.17	0.090	(0.168)	0.031	0.059
45	3.75	0.17	0.090	(0.168)	0.031	0.059
46	3.83	0.20	0.108	(0.167)	0.037	0.071

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

47	3.92	0.20	0.108	(0.166)	0.037	0.071
48	4.00	0.20	0.108	(0.166)	0.037	0.071
49	4.08	0.20	0.108	(0.165)	0.037	0.071
50	4.17	0.20	0.108	(0.164)	0.037	0.071
51	4.25	0.20	0.108	(0.163)	0.037	0.071
52	4.33	0.23	0.126	(0.163)	0.043	0.083
53	4.42	0.23	0.126	(0.162)	0.043	0.083
54	4.50	0.23	0.126	(0.161)	0.043	0.083
55	4.58	0.23	0.126	(0.161)	0.043	0.083
56	4.67	0.23	0.126	(0.160)	0.043	0.083
57	4.75	0.23	0.126	(0.159)	0.043	0.083
58	4.83	0.27	0.144	(0.159)	0.049	0.095
59	4.92	0.27	0.144	(0.158)	0.049	0.095
60	5.00	0.27	0.144	(0.157)	0.049	0.095
61	5.08	0.20	0.108	(0.157)	0.037	0.071
62	5.17	0.20	0.108	(0.156)	0.037	0.071
63	5.25	0.20	0.108	(0.155)	0.037	0.071
64	5.33	0.23	0.126	(0.154)	0.043	0.083
65	5.42	0.23	0.126	(0.154)	0.043	0.083
66	5.50	0.23	0.126	(0.153)	0.043	0.083
67	5.58	0.27	0.144	(0.152)	0.049	0.095
68	5.67	0.27	0.144	(0.152)	0.049	0.095
69	5.75	0.27	0.144	(0.151)	0.049	0.095
70	5.83	0.27	0.144	(0.150)	0.049	0.095
71	5.92	0.27	0.144	(0.150)	0.049	0.095
72	6.00	0.27	0.144	(0.149)	0.049	0.095
73	6.08	0.30	0.162	(0.148)	0.055	0.107
74	6.17	0.30	0.162	(0.148)	0.055	0.107
75	6.25	0.30	0.162	(0.147)	0.055	0.107
76	6.33	0.30	0.162	(0.146)	0.055	0.107
77	6.42	0.30	0.162	(0.146)	0.055	0.107
78	6.50	0.30	0.162	(0.145)	0.055	0.107
79	6.58	0.33	0.180	(0.145)	0.061	0.119
80	6.67	0.33	0.180	(0.144)	0.061	0.119
81	6.75	0.33	0.180	(0.143)	0.061	0.119
82	6.83	0.33	0.180	(0.143)	0.061	0.119
83	6.92	0.33	0.180	(0.142)	0.061	0.119
84	7.00	0.33	0.180	(0.141)	0.061	0.119
85	7.08	0.33	0.180	(0.141)	0.061	0.119
86	7.17	0.33	0.180	(0.140)	0.061	0.119
87	7.25	0.33	0.180	(0.139)	0.061	0.119
88	7.33	0.37	0.198	(0.139)	0.067	0.131
89	7.42	0.37	0.198	(0.138)	0.067	0.131
90	7.50	0.37	0.198	(0.137)	0.067	0.131
91	7.58	0.40	0.216	(0.137)	0.073	0.143
92	7.67	0.40	0.216	(0.136)	0.073	0.143
93	7.75	0.40	0.216	(0.136)	0.073	0.143
94	7.83	0.43	0.234	(0.135)	0.080	0.154
95	7.92	0.43	0.234	(0.134)	0.080	0.154
96	8.00	0.43	0.234	(0.134)	0.080	0.154
97	8.08	0.50	0.270	(0.133)	0.092	0.178
98	8.17	0.50	0.270	(0.132)	0.092	0.178
99	8.25	0.50	0.270	(0.132)	0.092	0.178
100	8.33	0.50	0.270	(0.131)	0.092	0.178
101	8.42	0.50	0.270	(0.131)	0.092	0.178
102	8.50	0.50	0.270	(0.130)	0.092	0.178
103	8.58	0.53	0.288	(0.129)	0.098	0.190
104	8.67	0.53	0.288	(0.129)	0.098	0.190
105	8.75	0.53	0.288	(0.128)	0.098	0.190
106	8.83	0.57	0.306	(0.128)	0.104	0.202
107	8.92	0.57	0.306	(0.127)	0.104	0.202
108	9.00	0.57	0.306	(0.126)	0.104	0.202
109	9.08	0.63	0.342	(0.126)	0.116	0.226
110	9.17	0.63	0.342	(0.125)	0.116	0.226
111	9.25	0.63	0.342	(0.125)	0.116	0.226
112	9.33	0.67	0.360	(0.124)	0.122	0.238
113	9.42	0.67	0.360	(0.123)	0.122	0.238
114	9.50	0.67	0.360	(0.123)	0.122	0.238
115	9.58	0.70	0.378	0.122 (0.129)		0.256
116	9.67	0.70	0.378	0.122 (0.129)		0.256
117	9.75	0.70	0.378	0.121 (0.129)		0.257
118	9.83	0.73	0.396	0.120 (0.135)		0.276
119	9.92	0.73	0.396	0.120 (0.135)		0.276
120	10.00	0.73	0.396	0.119 (0.135)		0.277

121	10.08	0.50	0.270	(0.119)	0.092	0.178
122	10.17	0.50	0.270	(0.118)	0.092	0.178
123	10.25	0.50	0.270	(0.118)	0.092	0.178
124	10.33	0.50	0.270	(0.117)	0.092	0.178
125	10.42	0.50	0.270	(0.116)	0.092	0.178
126	10.50	0.50	0.270	(0.116)	0.092	0.178
127	10.58	0.67	0.360	0.115	(0.122)	0.245
128	10.67	0.67	0.360	0.115	(0.122)	0.245
129	10.75	0.67	0.360	0.114	(0.122)	0.246
130	10.83	0.67	0.360	0.114	(0.122)	0.246
131	10.92	0.67	0.360	0.113	(0.122)	0.247
132	11.00	0.67	0.360	0.113	(0.122)	0.247
133	11.08	0.63	0.342	0.112	(0.116)	0.230
134	11.17	0.63	0.342	0.111	(0.116)	0.231
135	11.25	0.63	0.342	0.111	(0.116)	0.231
136	11.33	0.63	0.342	0.110	(0.116)	0.232
137	11.42	0.63	0.342	0.110	(0.116)	0.232
138	11.50	0.63	0.342	0.109	(0.116)	0.233
139	11.58	0.57	0.306	(0.109)	0.104	0.202
140	11.67	0.57	0.306	(0.108)	0.104	0.202
141	11.75	0.57	0.306	(0.108)	0.104	0.202
142	11.83	0.60	0.324	0.107	(0.110)	0.217
143	11.92	0.60	0.324	0.107	(0.110)	0.217
144	12.00	0.60	0.324	0.106	(0.110)	0.218
145	12.08	0.83	0.450	0.105	(0.153)	0.345
146	12.17	0.83	0.450	0.105	(0.153)	0.345
147	12.25	0.83	0.450	0.104	(0.153)	0.346
148	12.33	0.87	0.468	0.104	(0.159)	0.364
149	12.42	0.87	0.468	0.103	(0.159)	0.365
150	12.50	0.87	0.468	0.103	(0.159)	0.365
151	12.58	0.93	0.504	0.102	(0.171)	0.402
152	12.67	0.93	0.504	0.102	(0.171)	0.402
153	12.75	0.93	0.504	0.101	(0.171)	0.403
154	12.83	0.97	0.522	0.101	(0.177)	0.421
155	12.92	0.97	0.522	0.100	(0.177)	0.422
156	13.00	0.97	0.522	0.100	(0.177)	0.422
157	13.08	1.13	0.612	0.099	(0.208)	0.513
158	13.17	1.13	0.612	0.099	(0.208)	0.513
159	13.25	1.13	0.612	0.098	(0.208)	0.514
160	13.33	1.13	0.612	0.098	(0.208)	0.514
161	13.42	1.13	0.612	0.097	(0.208)	0.515
162	13.50	1.13	0.612	0.097	(0.208)	0.515
163	13.58	0.77	0.414	0.096	(0.141)	0.318
164	13.67	0.77	0.414	0.096	(0.141)	0.318
165	13.75	0.77	0.414	0.095	(0.141)	0.319
166	13.83	0.77	0.414	0.095	(0.141)	0.319
167	13.92	0.77	0.414	0.094	(0.141)	0.320
168	14.00	0.77	0.414	0.094	(0.141)	0.320
169	14.08	0.90	0.486	0.093	(0.165)	0.393
170	14.17	0.90	0.486	0.093	(0.165)	0.393
171	14.25	0.90	0.486	0.092	(0.165)	0.394
172	14.33	0.87	0.468	0.092	(0.159)	0.376
173	14.42	0.87	0.468	0.091	(0.159)	0.377
174	14.50	0.87	0.468	0.091	(0.159)	0.377
175	14.58	0.87	0.468	0.091	(0.159)	0.377
176	14.67	0.87	0.468	0.090	(0.159)	0.378
177	14.75	0.87	0.468	0.090	(0.159)	0.378
178	14.83	0.83	0.450	0.089	(0.153)	0.361
179	14.92	0.83	0.450	0.089	(0.153)	0.361
180	15.00	0.83	0.450	0.088	(0.153)	0.362
181	15.08	0.80	0.432	0.088	(0.147)	0.344
182	15.17	0.80	0.432	0.087	(0.147)	0.345
183	15.25	0.80	0.432	0.087	(0.147)	0.345
184	15.33	0.77	0.414	0.086	(0.141)	0.328
185	15.42	0.77	0.414	0.086	(0.141)	0.328
186	15.50	0.77	0.414	0.086	(0.141)	0.328
187	15.58	0.63	0.342	0.085	(0.116)	0.257
188	15.67	0.63	0.342	0.085	(0.116)	0.257
189	15.75	0.63	0.342	0.084	(0.116)	0.258
190	15.83	0.63	0.342	0.084	(0.116)	0.258
191	15.92	0.63	0.342	0.083	(0.116)	0.259
192	16.00	0.63	0.342	0.083	(0.116)	0.259
193	16.08	0.13	0.072	(0.083)	0.024	0.048
194	16.17	0.13	0.072	(0.082)	0.024	0.048

195	16.25	0.13	0.072	(0.082)	0.024	0.048
196	16.33	0.13	0.072	(0.081)	0.024	0.048
197	16.42	0.13	0.072	(0.081)	0.024	0.048
198	16.50	0.13	0.072	(0.080)	0.024	0.048
199	16.58	0.10	0.054	(0.080)	0.018	0.036
200	16.67	0.10	0.054	(0.080)	0.018	0.036
201	16.75	0.10	0.054	(0.079)	0.018	0.036
202	16.83	0.10	0.054	(0.079)	0.018	0.036
203	16.92	0.10	0.054	(0.078)	0.018	0.036
204	17.00	0.10	0.054	(0.078)	0.018	0.036
205	17.08	0.17	0.090	(0.078)	0.031	0.059
206	17.17	0.17	0.090	(0.077)	0.031	0.059
207	17.25	0.17	0.090	(0.077)	0.031	0.059
208	17.33	0.17	0.090	(0.076)	0.031	0.059
209	17.42	0.17	0.090	(0.076)	0.031	0.059
210	17.50	0.17	0.090	(0.076)	0.031	0.059
211	17.58	0.17	0.090	(0.075)	0.031	0.059
212	17.67	0.17	0.090	(0.075)	0.031	0.059
213	17.75	0.17	0.090	(0.075)	0.031	0.059
214	17.83	0.13	0.072	(0.074)	0.024	0.048
215	17.92	0.13	0.072	(0.074)	0.024	0.048
216	18.00	0.13	0.072	(0.073)	0.024	0.048
217	18.08	0.13	0.072	(0.073)	0.024	0.048
218	18.17	0.13	0.072	(0.073)	0.024	0.048
219	18.25	0.13	0.072	(0.072)	0.024	0.048
220	18.33	0.13	0.072	(0.072)	0.024	0.048
221	18.42	0.13	0.072	(0.072)	0.024	0.048
222	18.50	0.13	0.072	(0.071)	0.024	0.048
223	18.58	0.10	0.054	(0.071)	0.018	0.036
224	18.67	0.10	0.054	(0.071)	0.018	0.036
225	18.75	0.10	0.054	(0.070)	0.018	0.036
226	18.83	0.07	0.036	(0.070)	0.012	0.024
227	18.92	0.07	0.036	(0.070)	0.012	0.024
228	19.00	0.07	0.036	(0.069)	0.012	0.024
229	19.08	0.10	0.054	(0.069)	0.018	0.036
230	19.17	0.10	0.054	(0.069)	0.018	0.036
231	19.25	0.10	0.054	(0.068)	0.018	0.036
232	19.33	0.13	0.072	(0.068)	0.024	0.048
233	19.42	0.13	0.072	(0.068)	0.024	0.048
234	19.50	0.13	0.072	(0.067)	0.024	0.048
235	19.58	0.10	0.054	(0.067)	0.018	0.036
236	19.67	0.10	0.054	(0.067)	0.018	0.036
237	19.75	0.10	0.054	(0.066)	0.018	0.036
238	19.83	0.07	0.036	(0.066)	0.012	0.024
239	19.92	0.07	0.036	(0.066)	0.012	0.024
240	20.00	0.07	0.036	(0.066)	0.012	0.024
241	20.08	0.10	0.054	(0.065)	0.018	0.036
242	20.17	0.10	0.054	(0.065)	0.018	0.036
243	20.25	0.10	0.054	(0.065)	0.018	0.036
244	20.33	0.10	0.054	(0.064)	0.018	0.036
245	20.42	0.10	0.054	(0.064)	0.018	0.036
246	20.50	0.10	0.054	(0.064)	0.018	0.036
247	20.58	0.10	0.054	(0.064)	0.018	0.036
248	20.67	0.10	0.054	(0.063)	0.018	0.036
249	20.75	0.10	0.054	(0.063)	0.018	0.036
250	20.83	0.07	0.036	(0.063)	0.012	0.024
251	20.92	0.07	0.036	(0.063)	0.012	0.024
252	21.00	0.07	0.036	(0.062)	0.012	0.024
253	21.08	0.10	0.054	(0.062)	0.018	0.036
254	21.17	0.10	0.054	(0.062)	0.018	0.036
255	21.25	0.10	0.054	(0.062)	0.018	0.036
256	21.33	0.07	0.036	(0.061)	0.012	0.024
257	21.42	0.07	0.036	(0.061)	0.012	0.024
258	21.50	0.07	0.036	(0.061)	0.012	0.024
259	21.58	0.10	0.054	(0.061)	0.018	0.036
260	21.67	0.10	0.054	(0.060)	0.018	0.036
261	21.75	0.10	0.054	(0.060)	0.018	0.036
262	21.83	0.07	0.036	(0.060)	0.012	0.024
263	21.92	0.07	0.036	(0.060)	0.012	0.024
264	22.00	0.07	0.036	(0.060)	0.012	0.024
265	22.08	0.10	0.054	(0.059)	0.018	0.036
266	22.17	0.10	0.054	(0.059)	0.018	0.036
267	22.25	0.10	0.054	(0.059)	0.018	0.036
268	22.33	0.07	0.036	(0.059)	0.012	0.024

269	22.42	0.07	0.036	(0.059)	0.012	0.024
270	22.50	0.07	0.036	(0.059)	0.012	0.024
271	22.58	0.07	0.036	(0.058)	0.012	0.024
272	22.67	0.07	0.036	(0.058)	0.012	0.024
273	22.75	0.07	0.036	(0.058)	0.012	0.024
274	22.83	0.07	0.036	(0.058)	0.012	0.024
275	22.92	0.07	0.036	(0.058)	0.012	0.024
276	23.00	0.07	0.036	(0.058)	0.012	0.024
277	23.08	0.07	0.036	(0.057)	0.012	0.024
278	23.17	0.07	0.036	(0.057)	0.012	0.024
279	23.25	0.07	0.036	(0.057)	0.012	0.024
280	23.33	0.07	0.036	(0.057)	0.012	0.024
281	23.42	0.07	0.036	(0.057)	0.012	0.024
282	23.50	0.07	0.036	(0.057)	0.012	0.024
283	23.58	0.07	0.036	(0.057)	0.012	0.024
284	23.67	0.07	0.036	(0.057)	0.012	0.024
285	23.75	0.07	0.036	(0.057)	0.012	0.024
286	23.83	0.07	0.036	(0.057)	0.012	0.024
287	23.92	0.07	0.036	(0.057)	0.012	0.024
288	24.00	0.07	0.036	(0.056)	0.012	0.024

(Loss Rate Not Used)

Sum = 100.0 Sum = 38.8

Flood volume = Effective rainfall 3.24(In)
 times area 1.7(Ac.)/[(In)/(Ft.)] = 0.5(Ac.Ft)
 Total soil loss = 1.26(In)
 Total soil loss = 0.177(Ac.Ft)
 Total rainfall = 4.50(In)
 Flood volume = 19740.2 Cubic Feet
 Total soil loss = 7702.6 Cubic Feet

 Peak flow rate of this hydrograph = 0.873(CFS)

+++++

24 - H O U R S T O R M
 R u n o f f H y d r o g r a p h

 Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0002	0.03	Q				
0+10	0.0005	0.04	Q				
0+15	0.0008	0.04	Q				
0+20	0.0011	0.05	Q				
0+25	0.0015	0.06	Q				
0+30	0.0020	0.06	Q				
0+35	0.0024	0.06	Q				
0+40	0.0028	0.06	Q				
0+45	0.0032	0.06	Q				
0+50	0.0037	0.07	Q				
0+55	0.0043	0.08	Q				
1+ 0	0.0048	0.08	Q				
1+ 5	0.0053	0.07	Q				
1+10	0.0057	0.06	Q				
1+15	0.0061	0.06	Q				
1+20	0.0065	0.06	Q				
1+25	0.0070	0.06	Q				
1+30	0.0074	0.06	Q				
1+35	0.0078	0.06	Q				
1+40	0.0082	0.06	Q				
1+45	0.0086	0.06	Q				
1+50	0.0091	0.07	Q				
1+55	0.0097	0.08	Q				
2+ 0	0.0102	0.08	Q				
2+ 5	0.0108	0.08	Q				
2+10	0.0113	0.08	QV				
2+15	0.0119	0.08	QV				
2+20	0.0125	0.08	QV				
2+25	0.0130	0.08	QV				
2+30	0.0136	0.08	QV				
2+35	0.0142	0.09	QV				
2+40	0.0149	0.10	QV				
2+45	0.0156	0.10	QV				

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2+50	0.0163	0.10	QV				
2+55	0.0170	0.10	QV				
3+ 0	0.0177	0.10	QV				
3+ 5	0.0184	0.10	QV				
3+10	0.0191	0.10	QV				
3+15	0.0198	0.10	QV				
3+20	0.0205	0.10	QV				
3+25	0.0211	0.10	QV				
3+30	0.0218	0.10	QV				
3+35	0.0225	0.10	QV				
3+40	0.0232	0.10	Q V				
3+45	0.0239	0.10	Q V				
3+50	0.0247	0.12	Q V				
3+55	0.0255	0.12	Q V				
4+ 0	0.0264	0.12	Q V				
4+ 5	0.0272	0.12	Q V				
4+10	0.0280	0.12	Q V				
4+15	0.0289	0.12	Q V				
4+20	0.0298	0.14	Q V				
4+25	0.0308	0.14	Q V				
4+30	0.0317	0.14	Q V				
4+35	0.0327	0.14	Q V				
4+40	0.0337	0.14	Q V				
4+45	0.0347	0.14	Q V				
4+50	0.0357	0.16	Q V				
4+55	0.0368	0.16	Q V				
5+ 0	0.0379	0.16	Q V				
5+ 5	0.0389	0.13	Q V				
5+10	0.0397	0.12	Q V				
5+15	0.0405	0.12	Q V				
5+20	0.0414	0.14	Q V				
5+25	0.0424	0.14	Q V				
5+30	0.0434	0.14	Q V				
5+35	0.0445	0.16	Q V				
5+40	0.0456	0.16	Q V				
5+45	0.0467	0.16	Q V				
5+50	0.0478	0.16	Q V				
5+55	0.0489	0.16	Q V				
6+ 0	0.0500	0.16	Q V				
6+ 5	0.0512	0.18	Q V				
6+10	0.0525	0.18	Q V				
6+15	0.0537	0.18	Q V				
6+20	0.0550	0.18	Q V				
6+25	0.0562	0.18	Q V				
6+30	0.0574	0.18	Q V				
6+35	0.0588	0.20	Q V				
6+40	0.0602	0.20	Q V				
6+45	0.0616	0.20	Q V				
6+50	0.0630	0.20	Q V				
6+55	0.0643	0.20	Q V				
7+ 0	0.0657	0.20	Q V				
7+ 5	0.0671	0.20	Q V				
7+10	0.0685	0.20	Q V				
7+15	0.0699	0.20	Q V				
7+20	0.0714	0.22	Q V				
7+25	0.0729	0.22	Q V				
7+30	0.0744	0.22	Q V				
7+35	0.0760	0.24	Q V				
7+40	0.0777	0.24	Q V				
7+45	0.0794	0.24	Q V				
7+50	0.0811	0.26	Q V				
7+55	0.0829	0.26	Q V				
8+ 0	0.0847	0.26	Q V				
8+ 5	0.0867	0.29	Q V				
8+10	0.0888	0.30	Q V				
8+15	0.0909	0.30	Q V				
8+20	0.0930	0.30	Q V				
8+25	0.0950	0.30	Q V				
8+30	0.0971	0.30	Q V				
8+35	0.0993	0.32	Q V				
8+40	0.1015	0.32	Q V				
8+45	0.1037	0.32	Q V				
8+50	0.1061	0.34	Q V				
8+55	0.1084	0.34	Q V				

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

9+ 0	0.1108	0.34	Q	v					
9+ 5	0.1133	0.37	Q	v					
9+10	0.1160	0.38	Q	v					
9+15	0.1186	0.38	Q	v					
9+20	0.1213	0.40	Q	v					
9+25	0.1241	0.40	Q	v					
9+30	0.1269	0.40	Q	v					
9+35	0.1298	0.42	Q	v					
9+40	0.1328	0.43	Q	v					
9+45	0.1358	0.43	Q	v					
9+50	0.1389	0.46	Q	v					
9+55	0.1422	0.47	Q	v					
10+ 0	0.1454	0.47	Q	v					
10+ 5	0.1478	0.35	Q	v					
10+10	0.1499	0.30	Q	v					
10+15	0.1519	0.30	Q	v					
10+20	0.1540	0.30	Q	v					
10+25	0.1561	0.30	Q	v					
10+30	0.1582	0.30	Q	v					
10+35	0.1608	0.38	Q	v					
10+40	0.1637	0.42	Q	v					
10+45	0.1665	0.42	Q	v					
10+50	0.1694	0.42	Q	v					
10+55	0.1723	0.42	Q	v					
11+ 0	0.1752	0.42	Q	v					
11+ 5	0.1779	0.40	Q	v					
11+10	0.1806	0.39	Q	v					
11+15	0.1833	0.39	Q	v					
11+20	0.1860	0.39	Q	v					
11+25	0.1887	0.39	Q	v					
11+30	0.1914	0.39	Q	v					
11+35	0.1939	0.36	Q	v					
11+40	0.1962	0.34	Q	v					
11+45	0.1986	0.34	Q	v					
11+50	0.2011	0.36	Q	v					
11+55	0.2036	0.37	Q	v					
12+ 0	0.2062	0.37	Q	v					
12+ 5	0.2098	0.52	Q	v					
12+10	0.2138	0.58	Q	v					
12+15	0.2178	0.59	Q	v					
12+20	0.2220	0.61	Q	v					
12+25	0.2262	0.62	Q	v					
12+30	0.2305	0.62	Q	v					
12+35	0.2351	0.66	Q	v					
12+40	0.2398	0.68	Q	v					
12+45	0.2445	0.68	Q	v					
12+50	0.2493	0.70	Q	v					
12+55	0.2542	0.71	Q	v					
13+ 0	0.2592	0.72	Q	v					
13+ 5	0.2648	0.83	Q	v					
13+10	0.2708	0.87	Q	v					
13+15	0.2768	0.87	Q	v					
13+20	0.2828	0.87	Q	v					
13+25	0.2888	0.87	Q	v					
13+30	0.2948	0.87	Q	v					
13+35	0.2992	0.63	Q	v					
13+40	0.3029	0.54	Q	v					
13+45	0.3066	0.54	Q	v					
13+50	0.3103	0.54	Q	v					
13+55	0.3141	0.54	Q	v					
14+ 0	0.3178	0.54	Q	v					
14+ 5	0.3221	0.63	Q	v					
14+10	0.3267	0.67	Q	v					
14+15	0.3313	0.67	Q	v					
14+20	0.3358	0.65	Q	v					
14+25	0.3401	0.64	Q	v					
14+30	0.3445	0.64	Q	v					
14+35	0.3489	0.64	Q	v					
14+40	0.3534	0.64	Q	v					
14+45	0.3578	0.64	Q	v					
14+50	0.3620	0.62	Q	v					
14+55	0.3662	0.61	Q	v					
15+ 0	0.3705	0.61	Q	v					
15+ 5	0.3745	0.59	Q	v					

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

15+10	0.3786	0.58	Q				V
15+15	0.3826	0.58	Q				V
15+20	0.3865	0.56	Q				V
15+25	0.3903	0.56	Q				V
15+30	0.3941	0.56	Q				V
15+35	0.3974	0.47	Q				V
15+40	0.4004	0.44	Q				V
15+45	0.4034	0.44	Q				V
15+50	0.4064	0.44	Q				V
15+55	0.4094	0.44	Q				V
16+ 0	0.4124	0.44	Q				V
16+ 5	0.4137	0.18	Q				V
16+10	0.4142	0.08	Q				V
16+15	0.4148	0.08	Q				V
16+20	0.4153	0.08	Q				V
16+25	0.4159	0.08	Q				V
16+30	0.4164	0.08	Q				V
16+35	0.4169	0.07	Q				V
16+40	0.4173	0.06	Q				V
16+45	0.4177	0.06	Q				V
16+50	0.4181	0.06	Q				V
16+55	0.4185	0.06	Q				V
17+ 0	0.4190	0.06	Q				V
17+ 5	0.4196	0.09	Q				V
17+10	0.4203	0.10	Q				V
17+15	0.4210	0.10	Q				V
17+20	0.4217	0.10	Q				V
17+25	0.4223	0.10	Q				V
17+30	0.4230	0.10	Q				V
17+35	0.4237	0.10	Q				V
17+40	0.4244	0.10	Q				V
17+45	0.4251	0.10	Q				V
17+50	0.4257	0.09	Q				V
17+55	0.4263	0.08	Q				V
18+ 0	0.4268	0.08	Q				V
18+ 5	0.4274	0.08	Q				V
18+10	0.4279	0.08	Q				V
18+15	0.4285	0.08	Q				V
18+20	0.4290	0.08	Q				V
18+25	0.4296	0.08	Q				V
18+30	0.4301	0.08	Q				V
18+35	0.4306	0.07	Q				V
18+40	0.4310	0.06	Q				V
18+45	0.4314	0.06	Q				V
18+50	0.4317	0.05	Q				V
18+55	0.4320	0.04	Q				V
19+ 0	0.4323	0.04	Q				V
19+ 5	0.4327	0.05	Q				V
19+10	0.4331	0.06	Q				V
19+15	0.4335	0.06	Q				V
19+20	0.4340	0.07	Q				V
19+25	0.4346	0.08	Q				V
19+30	0.4351	0.08	Q				V
19+35	0.4356	0.07	Q				V
19+40	0.4360	0.06	Q				V
19+45	0.4364	0.06	Q				V
19+50	0.4367	0.05	Q				V
19+55	0.4370	0.04	Q				V
20+ 0	0.4373	0.04	Q				V
20+ 5	0.4377	0.05	Q				V
20+10	0.4381	0.06	Q				V
20+15	0.4385	0.06	Q				V
20+20	0.4389	0.06	Q				V
20+25	0.4393	0.06	Q				V
20+30	0.4397	0.06	Q				V
20+35	0.4402	0.06	Q				V
20+40	0.4406	0.06	Q				V
20+45	0.4410	0.06	Q				V
20+50	0.4413	0.05	Q				V
20+55	0.4416	0.04	Q				V
21+ 0	0.4419	0.04	Q				V
21+ 5	0.4422	0.05	Q				V
21+10	0.4427	0.06	Q				V
21+15	0.4431	0.06	Q				V

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

21+20	0.4434	0.05	Q				V
21+25	0.4437	0.04	Q				V
21+30	0.4439	0.04	Q				V
21+35	0.4443	0.05	Q				V
21+40	0.4447	0.06	Q				V
21+45	0.4452	0.06	Q				V
21+50	0.4455	0.05	Q				V
21+55	0.4457	0.04	Q				V
22+ 0	0.4460	0.04	Q				V
22+ 5	0.4464	0.05	Q				V
22+10	0.4468	0.06	Q				V
22+15	0.4472	0.06	Q				V
22+20	0.4475	0.05	Q				V
22+25	0.4478	0.04	Q				V
22+30	0.4481	0.04	Q				V
22+35	0.4484	0.04	Q				V
22+40	0.4487	0.04	Q				V
22+45	0.4489	0.04	Q				V
22+50	0.4492	0.04	Q				V
22+55	0.4495	0.04	Q				V
23+ 0	0.4498	0.04	Q				V
23+ 5	0.4500	0.04	Q				V
23+10	0.4503	0.04	Q				V
23+15	0.4506	0.04	Q				V
23+20	0.4509	0.04	Q				V
23+25	0.4512	0.04	Q				V
23+30	0.4514	0.04	Q				V
23+35	0.4517	0.04	Q				V
23+40	0.4520	0.04	Q				V
23+45	0.4523	0.04	Q				V
23+50	0.4525	0.04	Q				V
23+55	0.4528	0.04	Q				V
24+ 0	0.4531	0.04	Q				V
24+ 5	0.4532	0.01	Q				V

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

SECTION 4 - Soils Report

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

**PRELIMINARY GEOTECHNICAL INVESTIGATION
PROPOSED COMMERCIAL DEVELOPMENT
14058 REDLANDS BOULEVARD
MORENO VALLEY, CALIFORNIA**

**PROJECT NO. 12765.11
NOVEMBER 21, 2018**

Prepared For:

Mr. Parmjit Singh
14058 Redlands Boulevard
Moreno Valley, California 92555

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

November 21, 2018

Mr. Parmjit Singh
14058 Redlands Boulevard
Moreno Valley, California 92555

Project No. 12765.11

Subject: Preliminary Geotechnical Investigation, Proposed Commercial Development,
14058 Redlands Boulevard, Moreno Valley, California.

LOR Geotechnical Group, Inc., is pleased to present this report summarizing our geotechnical investigation for the subject project. In summary, it is our opinion that the proposed development is feasible from a geotechnical perspective, provided the recommendations presented in the attached report are incorporated into design and construction.

The project site is underlain by an approximate 2-foot thick layer of undocumented fill materials overlying alluvial materials which were found to have a potential for hydro-collapse in the upper 10 to 12 feet. It is our opinion that the existing fill materials and upper hydro-collapsible alluvial soils will not provide uniform and/or adequate support for the proposed development. Thus, we recommend a compacted fill mat be constructed beneath footings and slabs. The construction of this compacted fill mat will allow for the removal of the existing, uncontrolled fills and upper unsuitable alluvium. All on-site soils should be suitable for use as engineered compacted fill. Removals on the order of 10 to 12 feet are anticipated to be required within the proposed building pad areas, while removals on the order of 2 to 4 feet are expected to be necessary within parking, driveway, and flatwork areas.

Due to the presence of hydro-collapsible soils at the site and adjacent properties, infiltration of water into the upper approximately 10 to 12 feet is not recommended. While the remedial grading recommended within this report is anticipated to mitigate such soils within the proposed building areas of the site, the presence of hydro-collapsible soils on neighboring properties is most likely and the introduction of water into such soils could have an adverse effect on those developments.

Low expansive soils and moderate R-value quality soils were encountered on the site. A negligible sulfate content was found for the soils tested. Near completion and/or at the completion of site grading, additional foundation and subgrade soils should be tested to verify their expansion potential, soluble sulfate content, and R-value quality.

LOR Geotechnical Group, Inc.

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

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INTRODUCTION

During October and November of 2018, a Preliminary Geotechnical Investigation was performed by LOR Geotechnical Group, Inc., for the proposed commercial development of 14085 Redlands Boulevard, in the City of Moreno Valley, California. The purpose of this investigation was to provide a technical evaluation of the geologic setting of the site and to provide geotechnical design recommendations for the proposed development. The scope of our services included:

- Review of available geotechnical literature, reports, maps, and agency information pertinent to the study area;
- Geologic field reconnaissance mapping to verify the areal distribution of earth units and significance of surficial features as compiled from documents, literature, and reports reviewed;
- A subsurface field investigation to determine the physical soil conditions pertinent to the proposed development;
- Laboratory testing of selected soil samples obtained during the field investigation;
- Infiltration testing via the double ring test method within the approximate area proposed for the infiltration of onsite runoff waters;
- Development of geotechnical recommendations for site grading and foundation design; and
- Preparation of this report summarizing our findings, and providing conclusions and recommendations for site development.

The approximate location of the site is shown on the attached Index Map, Enclosure A-1 within Appendix A.

PROJECT CONSIDERATIONS

To orient our investigation at the site, a Site Plan was provided for our use. This plan illustrated the current site development as well as the proposed development. As illustrated, that the site will be developed with a 6,000 square foot restaurant and commercial building, a fueling station, and associated parking, driveway, and landscape improvements. A water quality basin is proposed. Minimal cuts and fills on the order of 2

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to 3 feet are anticipated based on the current site topography and that of the adjoining areas. A copy of the Site Plan is shown on Enclosure A-2, within the Appendix A.

The construction of the building is anticipated to be wood frame and stucco or similar type construction. Light to moderate foundation loads are anticipated with the proposed structure.

EXISTING SITE CONDITIONS

The site consists of approximately 2 acres of land located at the southeast corner of Alessandro Boulevard and Redlands Boulevard. At the time of our investigation, the site was partially developed with a commercial structure and the associated parking, driveway, and landscape improvements. A cellular tower and associated equipment was also present. This development comprised the western half of the site. The eastern half of the site was vacant. The proposed structure and water quality basin are to be in the southern portion of the eastern half of the site with the northern portion of the eastern half to be paved parking. The proposed fueling station is to be located within the currently developed parking lot in the northwest portion of the site.

The topography of the site is essentially a flat plain with a very slight slope to the south-southeast.

At the time of our investigation, the site was bounded on the east by a single family residences. The site was bounded on the south by Kimberly Avenue, a paved roadway, with single family residential properties beyond. The site was bounded on the north by Alessandro Boulevard, a paved roadway, with a small market/gas station and single family residences beyond. West of the site was Redlands Boulevard, a paved roadway, with a Post Office and single-family residences beyond.

PREVIOUS GEOTECHNICAL INVESTIGATIONS

This firm provided geotechnical services during the design and construction of the existing development on the site. Our initial investigation consisted of a preliminary geotechnical and infiltration feasibility investigation in 2011. This investigation was conducted to provide preliminary geotechnical recommendations for such items as: geologic hazards, site rough grading, foundation design, pavement design, and other associated geotechnical aspects with regards to site development. In brief summary, the upper approximately 10 to 12 feet of native soils were found to have a slight to moderate potential for hydro-collapse and

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were not considered suitable for support of structures and/or structural fill. In addition, the soils tested were found to have a low expansion potential, moderate R-value quality and negligible soluble sulfate content.

This firm provided geotechnical observation and compaction testing during the grading of the existing site improvements in 2012. Based on the recommendations of the preliminary geotechnical report, within the building pad area and extending approximately 12 feet beyond the footings, the upper approximately 12 feet of soil was removed and replaced as engineered compacted fill.

SUBSURFACE FIELD INVESTIGATION

Our subsurface field exploration program was conducted on October 26, 2018. The work consisted of advancing a total of three exploratory borings using a truck mounted drill rig equipped with 8-inch diameter hollow stem augers. The approximate locations of our exploratory borings are presented on Enclosure A-2, within Appendix A.

The subsurface conditions encountered in the exploratory borings were logged by a geologist from this firm. The borings were drilled to depths of 26.5 to 51.5 feet below the existing ground surface. Relatively undisturbed and bulk samples were obtained at a maximum depth interval of 5 feet and returned to our geotechnical laboratory in sealed containers for further testing and evaluation.

A detailed description of the subsurface field exploration program and the boring logs are presented in Appendix B.

LABORATORY TESTING PROGRAM

Selected soil samples obtained during the field investigation were subjected to geotechnical laboratory testing to evaluate their physical and engineering properties. Laboratory testing included moisture content, dry density, laboratory compaction, consolidation, direct shear, sieve analysis, sand equivalent, R-Value, expansion index, Atterberg limits, and soluble sulfate content. A detailed description of the geotechnical laboratory testing program and the test results are presented in Appendix C.

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GEOLOGIC CONDITIONS

Regional Geologic Setting

The site is situated within the northeastern portion of the Peninsular Ranges Geomorphic Province of southern California. This province incorporates several northwest trending mountain ranges, such as the Santa Ana and San Jacinto Mountains, which extend from the Transverse Ranges Geomorphic Province, northeast of Los Angeles, into the Baja California Peninsula. Lying in between these small ranges are a series of valleys and basins, such as the Perris Plain. The Perris Plain is composed of rocks of the Peninsular Ranges batholith, a very large mass composed primarily of batholithic crystalline igneous rocks, with lesser amounts of metasedimentary and metavolcanic rocks which predate the intrusion of the batholith. The batholithic rocks actually consist of numerous separate plutonic intrusions which range in composition from gabbro to granite, with tonalite the predominate lithology. While the floor of the Perris Plain is relatively flat, it is dotted with small remnant hills composed of rocks highly resistant to erosion. Erosion of the hills has resulted in the covering of a thin to thick veneer of various ages of alluvial fan materials across the flank of the hills and out into the adjoining valley floor. The current drainage pattern of the northeastern section of Moreno Valley flows to the south, then turns to the southwest where southward flow is blocked by Mount Russell. This pattern has eroded off some of the older alluvial fan materials and subsequently deposited various amounts of relatively younger, unconsolidated alluvial sediments along the lower reaches of the valley.

The interior of the Perris Plain is considered to be relatively stable with few known active faults. However, this plain is bounded by active faults. These include the Elsinore fault zone on the west, the San Jacinto fault zone on the northeast, the San Andreas fault zone on the north, and the Agua-Tibia fault zone on the south. As the subject site is located near the northeastern margin of the Perris Plain, the San Jacinto fault is the closest known active fault in relation to the site. At its closest approach, the San Jacinto fault is located approximately 3 kilometers (1.9 miles) northeast from the site. A complete listing of the distances to known active faults in relation to the various planning areas is given in the Faulting section of this report.

The site is shown within the regional geologic setting as mapped by the U.S.G.S. on the enclosed Regional Geologic Map, Enclosure A-3, within Appendix A.

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Site Geologic Conditions

As observed during this investigation, the subject site contains a very thin veneer of undocumented fill/topsoil or engineered fill overlying native alluvial materials. These units are described in further detail in the following sections:

Surficial Deposits

Fill/Topsoil: The surface of the currently undeveloped portion of the site contained a very thin layer of fill/topsoil materials. These materials were noted to generally consist of sandy silt which was gray-brown in color, dry, and in a relatively loose state. This unit was noted to be approximately 2 feet in thickness as is most likely a result of past and current weed abatement practices at the site.

Engineered Fill:

Underlying areas of the site that are currently developed, engineered compacted fill previously mentioned above was encountered at the surface to a depth of approximately 5 feet (LOR, 2012). These materials consisted of sandy silt and silty sand which was gray-brown, dry at the surface becoming damp to moist with depth.

Alluvium: Underlying the surficial fill materials, natural units of alluvium were encountered. These materials generally consisted of lean clay with sand near the surface followed by sandy silt within the upper approximately 25 feet. Lean clay with sand was encountered at depths of approximately 25 feet and greater. In general, the upper approximately 25 feet of alluvial materials were brown to white-tan in color, damp to dry, and contained varying amounts of calcite stringers and pinhole porosity. Based on our in-place density testing and equivalent SPT blow counts, the upper 10 to 12 feet of the alluvium is in a medium to very stiff state while the materials below are in a very stiff to very hard state. Consolidation testing also showed that the upper alluvial units have a moderately severe potential for collapse. Collapsible soils are primarily defined as unsaturated, granular materials in a loose state that is maintained by apparent cohesion due to clays or accumulated soluble salts at their intergranular contacts. These soils are relatively strong at their natural water contents but experience a significant decrease in volume (settlement) due to softening of the binder upon the introduction of water. A potential for hydro-collapse of approximately 10 percent was determined for the upper 10 feet of the native alluvial materials. Below 10 feet, the hydro-collapse potential of the on-site soils decreases to less than one-half percent and is, therefore, considered negligible. Expansion index testing performed on the

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fine grained units of alluvium showed that these soils have a low expansion potential. Details and the results of our consolidation and expansion index testing is presented within Appendix C of this report.

A detailed description of the subsurface soil conditions as encountered within our exploratory borings is presented on the Boring Logs within Appendix B.

Groundwater Hydrology

Groundwater was not encountered in any of our excavations at the site. In order to estimate the approximate depth to groundwater in this area, a search was conducted for local municipal water wells on the Western Municipal Water District Cooperative Well Measuring Program, Spring 2018. This database contains depth to groundwater measurements dating back to 1993. The closest well found was listed as the well "Sunnymead Poultry Theodore South" operated by Eastern Municipal Valley Water District, located approximately 0.8 kilometers (0.5 miles) to the northeast. In this well, given by the State Well numbering system as 03S/03W-12K001S, groundwater was last measured at a depth of 127 feet below the ground surface in November of 2007. The depth to groundwater in the past was noted to vary slightly over time. However, data was only available for the years from 2004 to 2007. The next closest well found was listed as the well "MVRGC" operated by Eastern Municipal Valley Water District, located approximately 1.2 kilometers (0.75 miles) to the southwest. In this well, given by the State Well numbering system as 03S/03W-14L011E, groundwater was last measured at a depth of 69 feet below the ground surface in October of 2016. The depth to groundwater in the past was noted to vary slightly over time. However, data was only available for the years from 2004 to 2016.

According to the Santa Ana Watershed Authority Database Management System, groundwater lied at an elevation of approximately 1,500 feet above mean sea level (msl) from 1987 to 2006. The approximate elevation of the subject site is 1,600 feet above msl.

We conducted a search of the water well database provided in the State of California Department of Water Resources website. This search indicated the nearest well in this database was State Well Number 03S02W07P001S, located approximately 2 kilometers (1.2 miles) to the northeast. Data for this well was available from 1939 to 1985. Groundwater measurements over that time ranged from approximately 100 feet to 145 feet below the ground surface.

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Based on the information above, groundwater at the site appears to be at depths on the order of one hundred feet.

Mass Movement

The majority of the site lies on a relatively flat surface. The occurrence of mass movement failures such as landslides, rockfalls, or debris flows within such areas are generally not considered common and no evidence of mass movement was observed on the site.

Faulting

No active or potentially active faults are known to exist at the subject site. In addition, the subject site does not lie within a current State of California Earthquake Fault Zone (Hart and Bryant, 2003).

As previously mentioned, the closest known active earthquake fault with a documented location is the San Jacinto fault located approximately 3 kilometers (1.9 miles) to the northeast. In addition, other relatively close active faults include the San Andreas fault located approximately 22 kilometers (13.5 miles) to the northeast, the Elsinore fault located approximately 34.5 kilometers (21.4 miles) to the southwest, and the Cucamonga fault located approximately 39 kilometers (24 miles) to the north.

The San Jacinto fault zone is a sub-parallel branch of the San Andreas fault zone, extending from the northwestern San Bernardino area, southward into the El Centro region. This fault has been active in recent times with several large magnitude events. It is believed that the San Jacinto fault is capable of producing an earthquake magnitude on the order of 6.5 or larger.

The San Andreas fault is considered to be the major tectonic feature of California, separating the Pacific Plate and the North American Plate. While estimates vary, the San Andreas fault is generally thought to have an average slip rate on the order of 24mm/yr and capable of generating large magnitude events on the order of 7.5.

The Elsinore fault zone is one of the largest in southern California. At its northern end it splays into two segments and at its southern end it is cut by the Yuba Wells fault. The primary sense of slip along the Elsinore fault is right lateral strike-slip. It is believed that the Elsinore fault zone is capable of producing an earthquake magnitude on the order of 6.5 to 7.5.

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The Cucamonga fault is considered to be part of the Sierra Madre fault system which marks the southern boundary of the San Gabriel Mountains. This is a north dipping thrust fault which is believed to be responsible for the uplift of the San Gabriel Mountains. It is believed that the Cucamonga fault is capable of producing an earthquake magnitude on the order of 7.0.

Current standards of practice included a discussion of all potential earthquake sources within a 100 kilometer (62 mile) radius. However, while there are other large earthquake faults within a 100 kilometer (62-mile) radius of the site, none of these are considered as relevant to the site as the faults described above, due to their closer distance and larger anticipated magnitudes.

Historical Seismicity

In order to obtain a general perspective of the historical seismicity of the site and surrounding region, a search was conducted for seismic events at and around the area within various radii. This search was conducted utilizing the historical seismic search program by EPI Software, Inc. (Reeder, 2000). This program conducts a search of a user selected cataloged seismic events database, within a specified radius and selected magnitudes, and then plots the events onto an overlay map of known faults. For this investigation the database of seismic events utilized by the EPI program was obtained from the Southern California Seismic Network (SCSN) available from the Southern California Earthquake Center. At the time of our search the data base contained data from January 1, 1932 through December 31, 2010.

In our first search, the general seismicity of the region was analyzed by selecting an epicenter map listing all events of magnitude 4.0 and greater, recorded since 1932, within a 100 kilometer (62 mile) radius of the site, in accordance with guidelines of the California Division of Mines and Geology. This map illustrates the regional seismic history of moderate to large events. As depicted on Enclosure A-4, within Appendix A, the site lies within a relatively active region associated with the San Jacinto and the San Andreas faults trending southeast to northwest. Of these events, the closest was a magnitude 4.1 located approximately 10 kilometers (6.2 miles) north of the site.

In the second search, the micro seismicity of the area lying within a 10 kilometer (9.2 miles) radius of the site was examined by selecting an epicenter map listing events on the order of 0.0 and greater since 1978. In addition, only the "A" events, or most accurate events were selected. Caltech indicates the accuracy of the "A" events to be approximately 1

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kilometer. The results of this search is a map that presents the seismic history around the area of the site with much greater detail, not permitted on the larger map. The reason for limiting the events to the last 30 ± years on the detail map is to enhance the accuracy of the map. Events recorded prior the mid 1970's are generally considered to be less accurate due to advancements in technology. As depicted on this map, Enclosure A-5, the San Jacinto fault appears to be the source of numerous events, roughly coinciding with the surface trace of this fault.

In summary, the historical seismicity of the site entails numerous small to medium magnitude earthquake events occurring in the region around the subject site, predominately associated with the presence of the San Jacinto, and San Andreas faults. Any future developments at the subject site should anticipate that moderate to large seismic events could occur very near the site.

Secondary Seismic Hazards

Other secondary seismic hazards generally associated with severe ground shaking during an earthquake include liquefaction, seismic-induced settlement, seiches and tsunamis, earthquake induced flooding, landsliding, and rockfalls.

Liquefaction: The potential for liquefaction generally occurs during strong ground shaking within loose, granular sediments where the groundwater is usually less than 50 feet. As the depth to groundwater is on the order of one hundred feet the potential for liquefaction is considered nil.

Seiches/Tsunamis: The potential for the site to be affected by a seiche or tsunami (earthquake generated wave) is considered nil due to the absence of any large bodies of water near the site.

Flooding (Water Storage Facility Failure): There are no large water storage facilities located on or near the site which could possibly rupture during an earthquake and affect the site by flooding.

Seismically-Induced Landsliding: Due to the low relief of the site and surrounding region, the potential for landslides to occur at the site is considered nil.

Rockfalls. No large, exposed, loose or unrooted boulders are present above the site that would affect the integrity of the site.

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SOILS AND SEISMIC DESIGN CRITERIA (California Building Code 2016)

Section 1613 of Chapter 16 of the 2016 California Building Code (CBC) contains the procedures and definitions for the calculations of the earthquake loads on structures and non structural components that are permanently attached to structures and their supports and attachments.

It should be noted that the classification of use and occupancy of all proposed structures at the site, and thus design requirements, shall be the responsibility of the structural engineer and the building official.

CBC Earthquake Design Summary

The following earthquake design criteria have been formulated for the site utilizing the source referenced above.

However, these values should be reviewed by the building official (Risk Category) and structural engineer and the final design should be performed by a qualified structural engineer familiar with the region.

CBC 2016 SEISMIC DESIGN SUMMARY (ASCE 7-10)* Site Location (USGS WGS84) 33.9169, -117.1561, Risk Category II	
Site Class Definition Chapter 20 ASCE 7	D
S_s Mapped Spectral Response Acceleration at 0.2s Period, (Figure 1613.3.1(1))	2.114
S_1 Mapped Spectral Response Acceleration at 1s Period, (Figure 1613.3.3(2))	0.955
F_a Short Period Site Coefficient at 0.2s Period, (Table 1613.3.3(1))	1.0
F_v Long Period Site Coefficient at 1s Period, (Table 1613.3.3(2))	1.5
S_{MS} Adjusted Spectral Response Acceleration at 0.2s Period, (eq .16-37)	2.114
S_{M1} Adjusted Spectral Response Acceleration at 1s Period, (eq .16-38)	1.432
S_{DS} Design Spectral Response Acceleration at 0.2s Period, (eq .16-39)	1.409
S_{D1} Design Spectral Response Acceleration at 1s Period, (eq .16-40)	0.955
Seismic Design Category - Short Period (Table 1613.3.5(1))	E
Seismic Design Category - Long Period (Table 1613.3.5(2))	E
*Values obtained from U.S.G.S. online U.S. Seismic Design Maps tool	

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INFILTRATION TESTING AND TEST RESULTS

Two double ring infiltration tests were conducted at the locations requested and illustrated on Enclosure A-2. As requested, test pits were excavated to depths of approximately 4 feet below the existing ground surface and a 12-inch diameter casing was installed within the center of the test locations with a 24-inch diameter casing centered around it. Each casing was imbedded to a depth of approximately 3.5-inches. These liners extended approximately 16.5-inches above the bottom of the test location. The test locations were tested immediately after the casings were installed by filling both the inside and outside casings and maintaining a water level to a depth of approximately 3.5 and 4-inches.

The testing procedure was as follows:

Both the inside and outside areas of the casings were filled with water to a level of approximately 3.5 and 4-inches above the ground surface. Water was then metered to maintain this water level within both rings. The volume of water use in a given time period was recorded at various time intervals to establish the infiltration rate of the water within the inner ring. See the attached Infiltration Test Data sheets, Enclosures D-1 and D-2 within Appendix D for the test information and measurements.

The infiltration rate is measured as the drop in water level compared to the permeability of the bottom surface area soils in the bottom of the test hole. If casing is not used, the water column in the test hole is allowed to seep into both the bottom and sidewalls of the hole, for which the drop in water level must be corrected and reduced for the volume of water seeping into the sidewall and for the diameter of the test hole. As described above, the tests described herein were conducted using a 12-inch diameter inner casing and 24-inch diameter outer casing.

The test holes were found to have the following measured clear water infiltration rates:

Infiltration Test No.	Infiltration Rate*	
	gal/sf/day	in/hr
DRI-1	22.7	1.7
DRI-2	22.5	1.7
* Rounded final reading		

Our test data indicates decent infiltration rates of the soils tested.

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CONCLUSIONS

On the basis of our field investigation and testing program, it is the opinion of LOR Geotechnical Group, Inc., that the proposed development is feasible from a soil engineering standpoint, provided the recommendations presented in this report are incorporated into design and implemented during grading and construction.

Based upon the field investigation and test data, it is our opinion that the surficial layer of existing fill/topsoil materials that covers the site, as well as the upper portions of the alluvial soil will not, in their present conditions, provide uniform and/or adequate support for the proposed structures. However, the removal and recompaction of existing on-site soils will be an acceptable solution. Our in-place density results indicated variable conditions of the existing fills and upper portions of the alluvial materials ranging from loose to medium dense states. In addition, a potential for hydro-collapse of approximately 10 percent was exhibited by the upper alluvial units, as shown in the laboratory test results presented within Appendix C. Left as is, this condition could cause unacceptable differential and/or overall settlements upon application of the anticipated foundation loads.

To provide adequate support for the proposed structure, we recommend a compacted fill mat be constructed beneath footings and slabs. This compacted fill mat will provide a dense, high-strength soil layer to uniformly distribute the anticipated foundation loads over the underlying soils. In addition, the construction of this compacted fill mat will allow for the removal of the existing fills and the loose, moderately collapsible alluvial soil within the building pad area. Conventional foundation systems, using either individual spread footings and/or continuous wall footings, will provide adequate support for the anticipated downward and lateral loads when utilized in conjunction with the recommended fill mat.

Soil Expansiveness

As noted by our subsurface explorations and laboratory testing, the site surficial soils primarily consist of lean clay with sand and silty sand with trace of clay that possess a low expansion potential. Therefore, recommendations for low expansive soils are given in the Foundation Design, Building Area Slab-on-Grade, and Exterior Flatwork sections of this report.

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Geologic Mitigations

No special mitigation methods are deemed necessary at this time, other than the geotechnical recommendations provided in the following sections.

Seismicity

Seismic ground rupture is generally considered most likely to occur along pre-existing active faults. Since no faults are known to exist at, or project into the site, the probability of ground surface rupture occurring at the site is considered nil.

Due to the site's close proximity to the San Jacinto and San Andreas faults described above, it is reasonable to expect a very strong ground motion seismic event to occur during the lifetime of the proposed development on the site. Large earthquakes could occur on other faults in the general area, but because of their lesser anticipated magnitude and/or greater distance, they are considered less significant than the San Jacinto and San Andreas fault zones from a ground motion standpoint.

The effects of ground shaking anticipated at the subject site, should be mitigated by the seismic design requirements and procedures outlined in Chapter 16 of the California Building Code. However, it should be noted that the current building code requires the minimum design to allow a structure to remain standing after a seismic event, in order to allow for safe evacuation. A structure built to code may still sustain damage which might ultimately result in the demolishing of the structure (Larson and Slosson, 1992).

RECOMMENDATIONS

General Site Grading

It is imperative that no clearing and/or grading operations be performed without the presence of a qualified geotechnical engineer. An on-site, pre-job meeting with the developer, the contractor, the jurisdictional agency, and the geotechnical engineer should occur prior to all grading related operations. Operations undertaken at the site without the geotechnical engineer present may result in exclusion of affected areas from the final compaction report for the project.

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Grading of the subject site should be performed in accordance with the following recommendations as well as applicable portions of the California Building Code, and/or applicable local ordinances.

All areas to be graded should be stripped of significant vegetation and other deleterious materials. Such materials may not be used as engineered fill.

All uncontrolled fills encountered during site preparation should be completely removed, cleaned of significant deleterious materials, and may then be reused as compacted fill. Uncontrolled fills were identified at the site during this study to a depth on the order of 2 feet.

It is our recommendation that all existing uncontrolled and/or undocumented fills under any proposed flatwork and paved areas should be removed and replaced with engineered compacted fill. If this is not done, premature structural distress (settlement) of the flatwork and pavement may occur.

Cavities created by removal of subsurface obstructions should be thoroughly cleaned of loose soil, organic matter and other deleterious materials, shaped to provide access for construction equipment, and backfilled as recommended in the following Engineered Compacted Fill section of this report.

Initial Site Preparation

All existing uncontrolled fills and loose, hydro-collapsible alluvial materials should be removed from structural areas and areas to receive structural fills. The data developed during this investigation indicates that removals on the order of 10 to 12 feet will be required to encounter competent alluvium. Areas adjacent to the existing structure to within approximately 12 feet, are anticipated to encounter engineered compacted fill previously placed during rough grading for the structure. Removals for the new structure should expose these materials prior to reaching the existing building. Competent alluvium is defined as damp, medium dense to dense materials with a minimum relative compaction of 83 percent (ASTM D 1557).

Remedial removals on the order of 2 to 4 feet in depth are anticipated to be required within planned parking, driveway, and flatwork areas in order to eliminate the existing uncontrolled fills.

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The actual depths of removal should be verified during the grading operation by observation and in-place density testing.

Preparation of Fill Areas

After conducting the removals discussed above and prior to placing fill, the surfaces of all areas to receive fill should be scarified to a depth of at least 12 inches. The scarified soil should be brought to near optimum moisture content and recompacted to a relative compaction of at least 90 percent (ASTM D 1557).

Preparation of Building Pad Areas

All footings should rest upon a minimum of 24 inches of properly compacted fill material placed over competent alluvium. In areas where the required fill thickness is not accomplished by the removal of the existing fill and loose alluvial materials and site rough grading, the footing areas should be further subexcavated to a depth of at least 24 inches below the proposed footing base grade, with the subexcavation extending at least 5 feet beyond the footing lines. Where deeper removals in excess of 5 feet are required, these removals should extend laterally at a 1:1 ratio. The bottom of this excavation should then be scarified to a depth of at least 12 inches, brought to near optimum moisture content, and recompacted to at least 90 percent relative compaction (ASTM D 1557) prior to refilling the excavation to grade as properly compacted fill.

Along the northern, eastern, and southern portion of the restaurant/commercial building, removals will need to extend eastward beyond the footing line in order to provide the above recommended 1:1 ratio. As previously mentioned, areas adjacent to the existing structure to within approximately 12 feet, are anticipated to encounter engineered compacted fill previously placed during rough grading for the structure. Removals for the new structure should expose these materials prior to reaching the existing building.

To provide adequate support, concrete slabs-on-grade should bear on a minimum of 12 inches of compacted soil. During rough grading, the remedial removals recommended above will most likely provide the recommended 12 inches of compacted soil for adequate support of concrete slabs-on-grade.

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Engineered Compacted Fill

The on-site soils should provide adequate quality fill material, provided they are free from organic matter and other deleterious materials. Unless approved by the geotechnical engineer, rock or similar irreducible material with a maximum dimension greater than 6-inches should not be buried or placed in fills.

Import fill should be inorganic, non-expansive granular soils free from rocks or lumps greater than 6-inches in maximum dimension. Sources for import fill should be approved by the geotechnical engineer prior to their use.

Fill should be spread in maximum 8-inch loose lifts, each lift brought to near optimum moisture content, and compacted to a relative compaction of at least 90 percent in accordance with ASTM D 1557.

As noted before, the on-site soils have potential for expansion. Therefore, a careful evaluation of on-site and any imported soils for their expansion potential should be conducted during the grading operation.

Short-Term Excavations

Following the California Occupational and Safety Health Act (CAL-OSHA) requirements, excavations 5-feet deep and greater should be sloped or shored. All excavations and shoring should conform to CAL-OSHA requirements.

Short-term excavations of 5-feet deep and greater shall conform to Title 8 of the California Code of Regulations, Construction Safety Orders, Section 1504 and 1539 through 1547. Based on our exploratory borings it appears that Type C soil is the predominant type of soil on the project and all short-term excavations should be based on this type of soil. Deviation from the standard short-term slopes are permitted using Option 4, Design by a Registered Professional Engineer (Section 1541.1).

Short-term slope construction and maintenance are the responsibility of the contractor, and should be a consideration of his methods of operation and the actual soil conditions encountered.

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Soil Expansiveness

The upper materials encountered during this investigation were observed to be granular and considered to have a low expansion potential. Therefore, specialized construction procedures to specifically resist expansive soil activity are not anticipated at this time. In order to verify this, additional evaluation of on-site and any imported soils for their expansion potential should be conducted following completion of the grading operation.

Foundation Design

If the site is prepared as recommended, the proposed residential buildings may be safely founded on conventional spread foundations, either individual spread footings and/or continuous wall footings, bearing on a minimum of 24 inches of engineered compacted fill. All foundations should have a minimum width of 12 inches and should be established a minimum of 12 inches below lowest adjacent grade.

For the minimum width and depth, footings may be designed using a maximum soil bearing pressure of 1,500 pounds per square foot (psf) for dead plus live loads. This value may be increased by 300 psf for each additional foot of width and by 300 psf for each additional foot of depth, to a maximum of 3,000 psf.

The above values are net pressures; therefore, the weight of the foundations and the backfill over the foundations may be neglected when computing dead loads. The values apply to the maximum edge pressure for foundations subjected to eccentric loads or overturning. The recommended pressures apply for the total of dead plus frequently applied live loads, and incorporate a factor of safety of at least 3.0. The allowable bearing pressures may be increased by one-third for temporary wind or seismic loading. The resultant of the combined vertical and lateral seismic loads should act within the middle one-third of the footing width. The maximum calculated edge pressure under the toe of foundations subjected to eccentric loads or overturning should not exceed the increased allowable pressure.

Resistance to lateral loads will be provided by passive earth pressure and base friction. For footings bearing against compacted fill, passive earth pressure may be considered to be developed at a rate of 300 pounds per square foot per foot of depth. Base friction may be computed at 0.30 times the normal load. Base friction and passive earth pressure may be combined without reduction.

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Footings on low expansive soils should be reinforced with a minimum of two #4 rebars, one near the top and one near the bottom of the footings.

The preceding recommendations to counteract low expansive soil activity should be considered preliminary and should be revised upon the completion of the site grading. More stringent parameters for design of foundations on expansive soils can be specified by a structural engineer experienced in these matters.

Settlement

Total settlement of individual foundations will vary depending on the width of the foundation and the actual load supported. Maximum settlement of shallow foundations designed and constructed in accordance with the preceding recommendations are estimated to be on the order of 0.5 inch. Differential settlement between adjacent footings should be about one-half of the total settlement. Settlement of all foundations is expected to occur rapidly, primarily as a result of elastic compression of supporting soils as the loads are applied, and should be essentially completed shortly after initial application of the loads.

Building Pad Slab-On-Grade Design

Concrete floor slabs should bear on a minimum of 24 inches of engineered fill compacted to at least 90 percent (ASTM D 1557) placed over competent alluvium. This will most likely be accomplished during the recommended removals previously mentioned. The final pad surfaces should be rolled to provide smooth, dense surfaces upon which to place the concrete.

Because low expansive soils are present at the site, slab areas should be properly pre-soaked prior to pouring concrete. Slab areas should be pre-soaked to approximately 2 percent above the optimum moisture content to a minimum depth of 12 inches. Unless more stringent parameters are given by the structural engineer experienced on expansive soil design, the slab thickness should be a minimum of 4 inches. Minimum slab reinforcement should consist of #3 rebars placed at a maximum spacing of 18 inches on center, each way.

Slabs to receive moisture-sensitive coverings should be provided with a moisture vapor barrier. This barrier may consist of an impermeable membrane. Two inches of sand over the membrane will reduce punctures and aid in obtaining a satisfactory concrete cure. The sand should be moistened just prior to placing of concrete.

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The slabs should be protected from rapid and excessive moisture loss which could result in slab curling. Careful attention should be given to slab curing procedures, as the site area is subject to large temperature extremes, humidity, and strong winds.

The preceding recommendations to counteract low expansive soil activity should be considered preliminary and are subject to the review and approval of the project structural engineer. These recommendations should be also revised upon the completion of the site grading.

Exterior Flatwork

To provide adequate support, exterior flatwork improvements should rest on a minimum of 12 inches of soil compacted to at least 90 percent (ASTM D 1557).

Because low expansive soils are present at the site, flatwork areas should be pre-soaked prior to pouring concrete to a minimum depth of 12 inches and to approximately 2 percent above the optimum moisture content. All sidewalks, patio slabs, and driveways with a minimum dimension greater than 5 feet, should be reinforced with #3 rebars placed at a maximum spacing of 18 inches on center, each way. Reinforcement for curbing should be one continuous #4 rebar at top and bottom. In addition, it is recommended that sidewalks, patio slabs, curbs, etc., have a thickness of at least 4 inches, with saw cuts every 10 feet or less. Driveways should be at least 8 inches (per city standard 112) thick, with saw cuts every 15 feet or less.

Flatwork surface should be sloped a minimum of 1 percent away from buildings and slopes, to approved drainage structures.

Again, the recommendations given to counteract low expansive soil activity should be considered preliminary and should be revised upon the completion of the site grading.

Wall Pressures

The design of footings for walls below grade (basement or pit walls, etc.) and retaining structures should be performed in accordance with the recommendations described earlier under Preparation of Building Pad Areas and Foundation Design. For design of retaining wall footings, the resultant of the applied loads should act in the middle one-third of the

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footing, and the maximum edge pressure should not exceed the basic allowable value without increase.

For design of retaining walls unrestrained against movement at the top, we recommend an equivalent fluid density of 35 pounds per cubic foot (pcf) be used. This assumes level backfill consisting of recompacted, non-expansive, native soils placed against the structures and with the backcut slope extending upward from the base of the stem at 35 degrees from the vertical or flatter.

As noted before, expansive soils are present at the site. Since these materials have a very low permeability very uncertain behavior, and exert much higher lateral earth pressures on retaining structures, they should not be used as wall backfills.

To avoid overstressing or excessive tilting during placement of backfill behind walls, heavy compaction equipment should not be allowed within the zone delineated by a 45 degree line extending from the base of the wall to the fill surface. The backfill directly behind the walls should be compacted using light equipment such as hand operated vibrating plates and rollers. No material larger than 3-inches in diameter should be placed in direct contact with the wall.

Wall pressures should be verified prior to construction, when the actual backfill materials and conditions have been determined. Recommended pressures are applicable only to level, non-expansive, properly drained backfill (with no additional surcharge loadings). If inclined backfills are proposed, this firm should be contacted to develop appropriate active earth pressure parameters. Toe bearing pressure for non-structural walls on soils, not prepared as described earlier under Preparation of Foundation Areas, should not exceed California Building Code values, (CBC Table 18-1.A).

Preliminary Pavement Design

Testing and design for preliminary on-site pavement was conducted in accordance with the Caltrans Highway Design Manual. Based upon our preliminary sampling and testing, and upon assumed Traffic Indices, it appears that the structural sections tabulated below should provide satisfactory pavements for the subject development:

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AREA	T.I.	DESIGN R-VALUE	PRELIMINARY SECTION
On-site parking and drive aisles	5.0	20	0.25' AC/0.60' AB
Local Street - Kimberly Avenue	6.0	20	0.30' AC*/0.85' CAB
AC - Asphalt Concrete AB - Class 2 Aggregate Base or equivalent CAB - Crushed Aggregate Base * Minimum thickness per the City of Moreno Valley Standard Plans No. 100A approved 09/18			

The above structural sections are predicated upon 90 percent relative compaction (ASTM D 1557) of all utility trench backfills and 95 percent relative compaction (ASTM D 1557) of the upper 12 inches of street subgrade soils and of any aggregate base utilized. In addition, the on-site aggregate base should meet Caltrans specifications for Class 2 Aggregate Base and the aggregate base within the City right-of-way should meet Greenbook specifications for Crushed Aggregate Base.

In areas of the pavement which will receive high abrasion loads due to start-ups and stops, or where trucks will move on a tight turning radius, consideration should be given to installing concrete pads. Such pads should contain a minimum of 0.50 foot thick concrete with a 0.35 foot thick aggregate base. Concrete pads are also recommended in areas adjacent to trash storage areas where heavier loads will occur due to operation of trucks lifting trash dumpsters. The minimum compressive strength of concrete paving should be 3,250 psi.

It should be noted that all of the above pavement design was based upon the results of preliminary sampling and testing, and should be verified by additional sampling and testing during construction when the actual subgrade soils are exposed.

Sulfate Protection

The results of the sulfate tests conducted on selected subgrade soils expected to be encountered at foundation levels are presented in Appendix C.

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Based on the test results it appears that there is a negligible sulfate exposure to concrete elements in contact with on site soils. The 2016 CBC, therefore, does not recommend special design criteria for concrete elements in contact with such materials.

Infiltration Basin

Due to the presence of hydro-collapsible soils at the site and adjacent properties, infiltration of water into the upper approximately 10 to 12 feet is not recommended. While the remedial grading recommended within this report is anticipated to mitigate such soils within the proposed building areas of the site, the presence of hydro-collapsible soils on neighboring properties is most likely and the introduction of water into such soils could have an adverse effect on those developments.

Construction Monitoring

Post investigative services are an important and necessary continuation of this investigation. Project plans and specifications should be reviewed by the project geotechnical consultant prior to construction to confirm that the intent of the recommendations presented in this report have been incorporated into the design. Additional R-Value, expansion index, and soluble sulfate testing may be required after/during site rough grading.

During construction, sufficient and timely geotechnical observation and testing should be provided to correlate the findings of this investigation with the actual subsurface conditions exposed during construction. Items requiring observation and testing include, but are not necessarily limited to, the following:

1. Site preparation-stripping and removals.
2. Excavations, including approval of the bottom of excavation prior to backfilling.
3. Scarifying and recompacting prior to fill placement.
4. Subgrade preparation for pavements and slabs-on-grade.

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5. Placement of engineered compacted fill and backfill, including approval of fill materials and the performance of sufficient density tests to evaluate the degree of compaction being achieved.

LIMITATIONS

This report contains geotechnical conclusions and recommendations developed solely for use by Mr. Parmjit Singh, and their design consultants, for the purposes described earlier. It may not contain sufficient information for other uses or the purposes of other parties. The contents should not be extrapolated to other areas or used for other facilities without consulting LOR Geotechnical Group, Inc.

The recommendations are based on interpretations of the subsurface conditions concluded from information gained from subsurface explorations and a surficial site reconnaissance. The interpretations may differ from actual subsurface conditions, which can vary horizontally and vertically across the site. If conditions are encountered during the construction of the project, which differ significantly from those presented in this report, this firm should be notified immediately so we may assess the impact to the recommendations provided. Due to possible subsurface variations, all aspects of field construction addressed in this report should be observed and tested by the project geotechnical consultant.

If parties other than LOR Geotechnical Group, Inc. provide construction monitoring services, they must be notified that they will be required to assume responsibility for the geotechnical phase of the project being completed by concurring with the recommendations provided in this report or by providing alternative recommendations.

The report was prepared using generally accepted geotechnical engineering practices under the direction of a state licensed geotechnical engineer. No warranty, expressed or implied, is made as to conclusions and professional advice included in this report. Any persons using this report for bidding or construction purposes should perform such independent investigations as deemed necessary to satisfy themselves as to the surface and subsurface conditions to be encountered and the procedures to be used in the performance of work on this project.

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TIME LIMITATIONS


The findings of this report are valid as of this date. Changes in the condition of a property can, however, occur with the passage of time, whether they be due to natural processes or the work of man on this or adjacent properties. In addition, changes in the Standards-of-Practice and/or Governmental Codes may occur. Due to such changes, the findings of this report may be invalidated wholly or in part by changes beyond our control. Therefore, this report should not be relied upon after a significant amount of time without a review by LOR Geotechnical Group, Inc. verifying the suitability of the conclusions and recommendations.


CLOSURE


It has been a pleasure to assist you with this project. We look forward to being of further assistance to you as construction begins. Should conditions be encountered during construction that appear to be different than indicated by this report, please contact this office immediately in order that we might evaluate their effect.

Should you have any questions regarding this report, please do not hesitate to contact our office at your convenience.

Respectfully submitted,
LOR Geotechnical Group, Inc.


Andrew A. Tardie
Staff Geologist


Robert M. Markoff, CEG 2073
Engineering Geologist


John P. Leuer, GE 2030
President



AAT:RMM:JPL/ss

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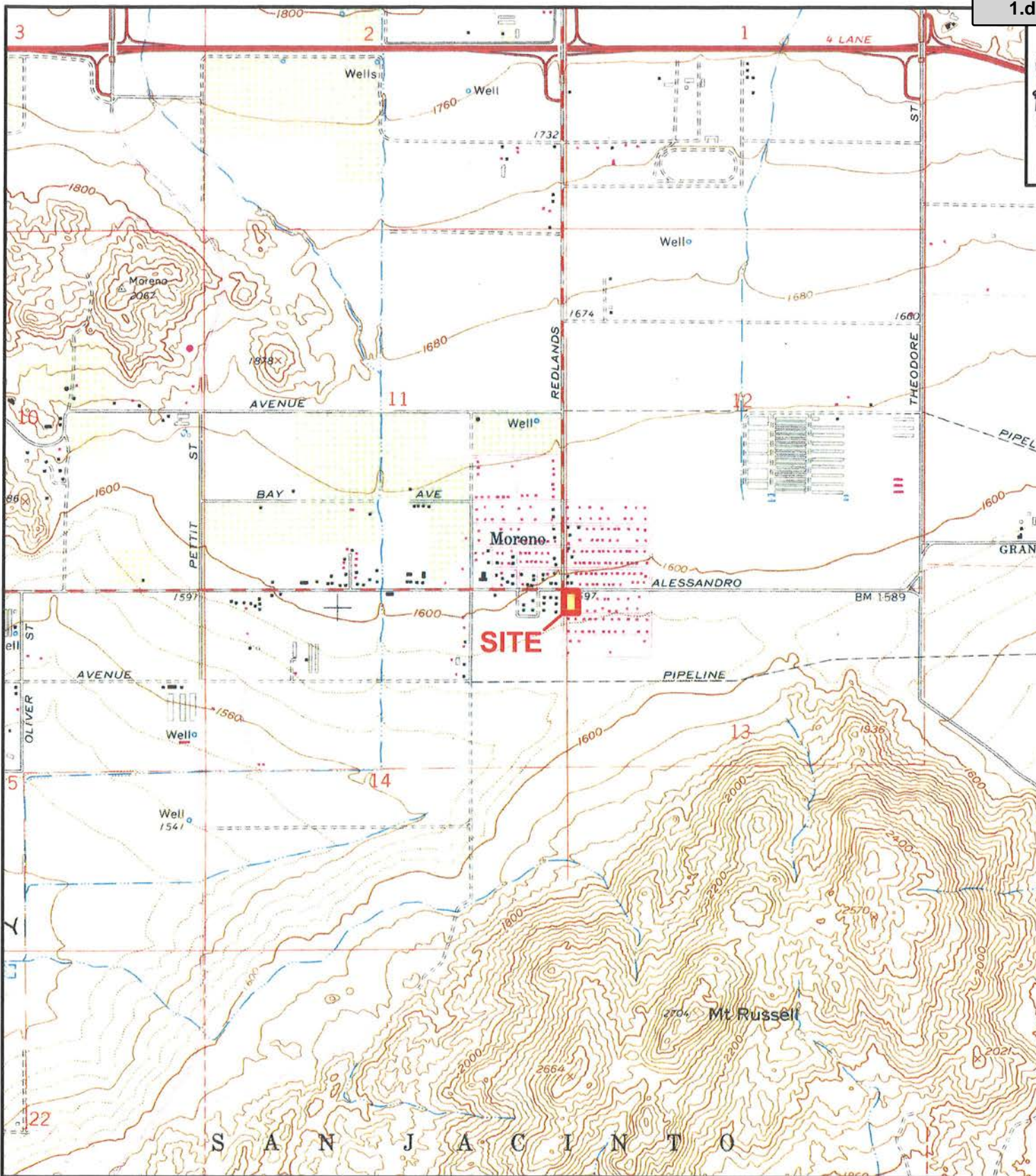
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APPENDIX A

Index Map, Site Plan, Regional Geologic Map, and Historical Seismicity Maps



INDEX MAP

PROJECT: PROPOSED GAS STATION AND RESTAURANT, MORENO VALLEY, CALIFORNIA

PROJECT NO: 12765

CLIENT: MR. PARMJIT SINGH

ENCLOSURE: /

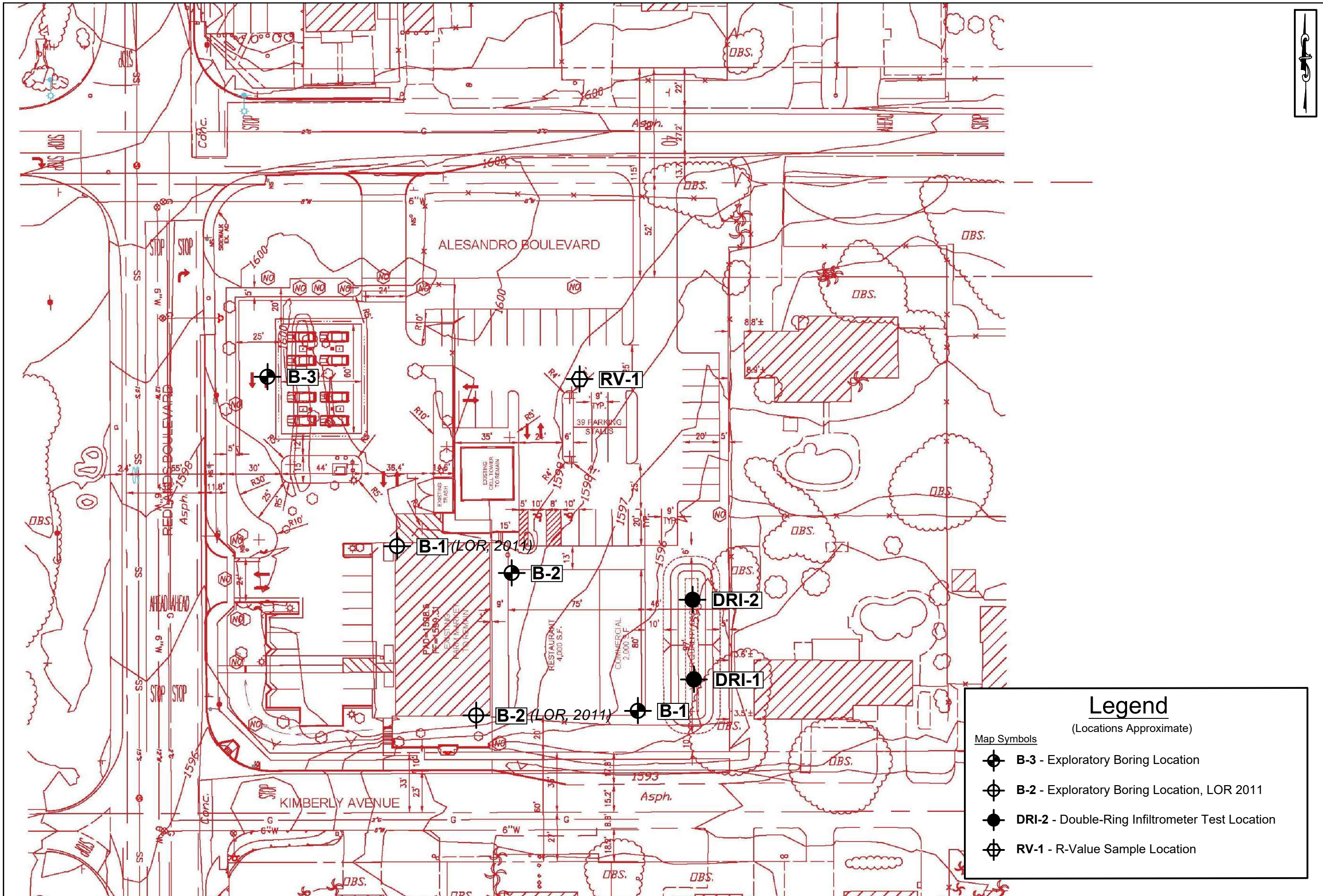
LOR Geotechnical Group, Inc.

DATE: OCTOBER 20

SCALE: 1" = 2000'





Packet Pg. 1923

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)



Legend
(Locations Approximate)

Map Symbols

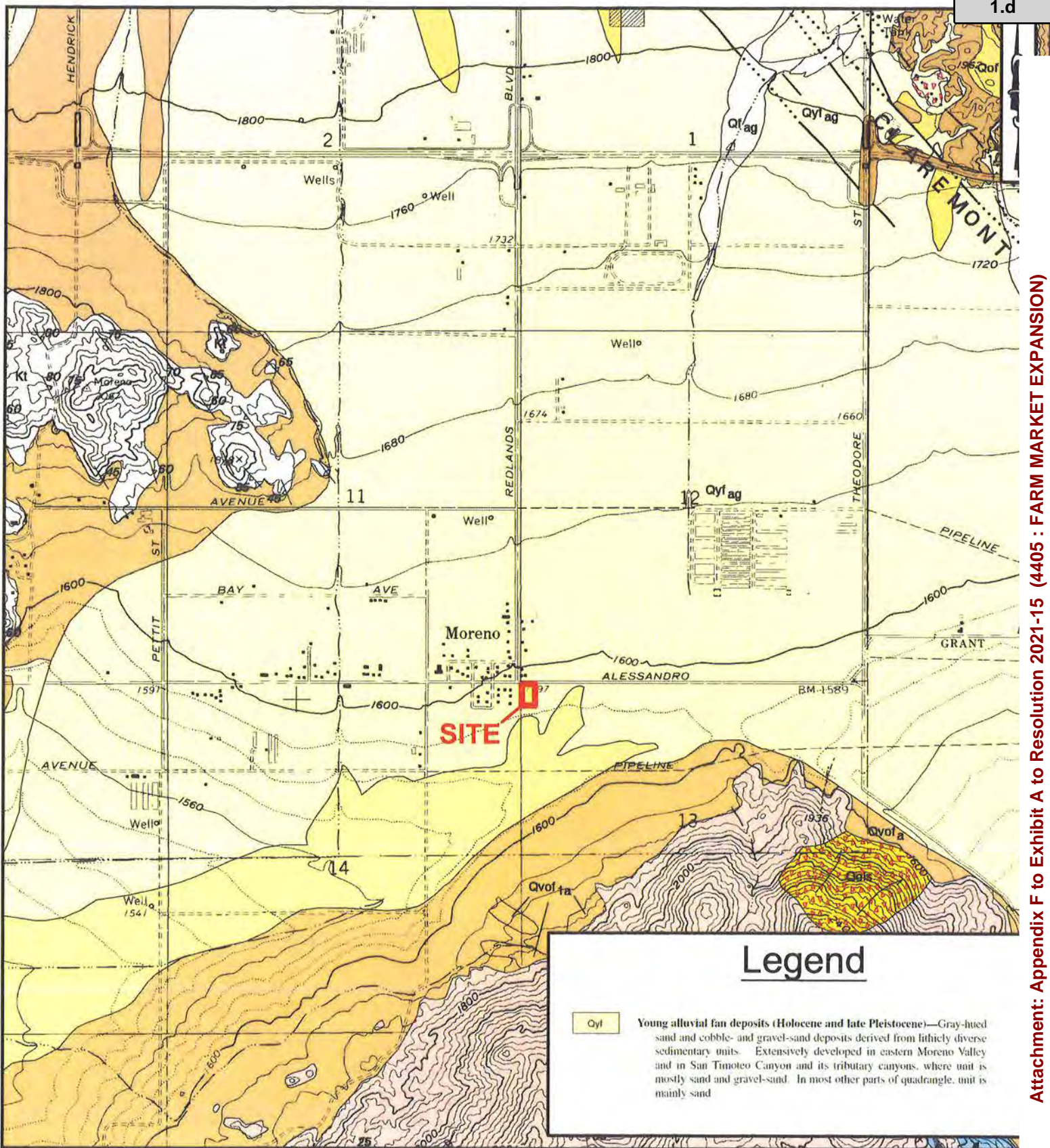
-  **B-3** - Exploratory Boring Location
-  **B-2** - Exploratory Boring Location, LOR 2011
-  **DRI-2** - Double-Ring Infiltrometer Test Location
-  **RV-1** - R-Value Sample Location

SITE PLAN

PROJECT:	PROPOSED GAS STATION AND RESTAURANT, MORENO VALLEY, CALIFORNIA	PROJECT NO.:	12765.11
CLIENT:	MR. PARMJIT SINGH	ENCLOSURE:	A-2
		DATE:	OCTOBER 2018
		SCALE:	1" = 50'

LOR Geotechnical Group, Inc.

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)



Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Legend

Qyf Young alluvial fan deposits (Holocene and late Pleistocene)—Gray-hued sand and cobble- and gravel-sand deposits derived from lithically diverse sedimentary units. Extensively developed in eastern Moreno Valley and in San Timoteo Canyon and its tributary canyons, where unit is mostly sand and gravel-sand. In most other parts of quadrangle, unit is mainly sand

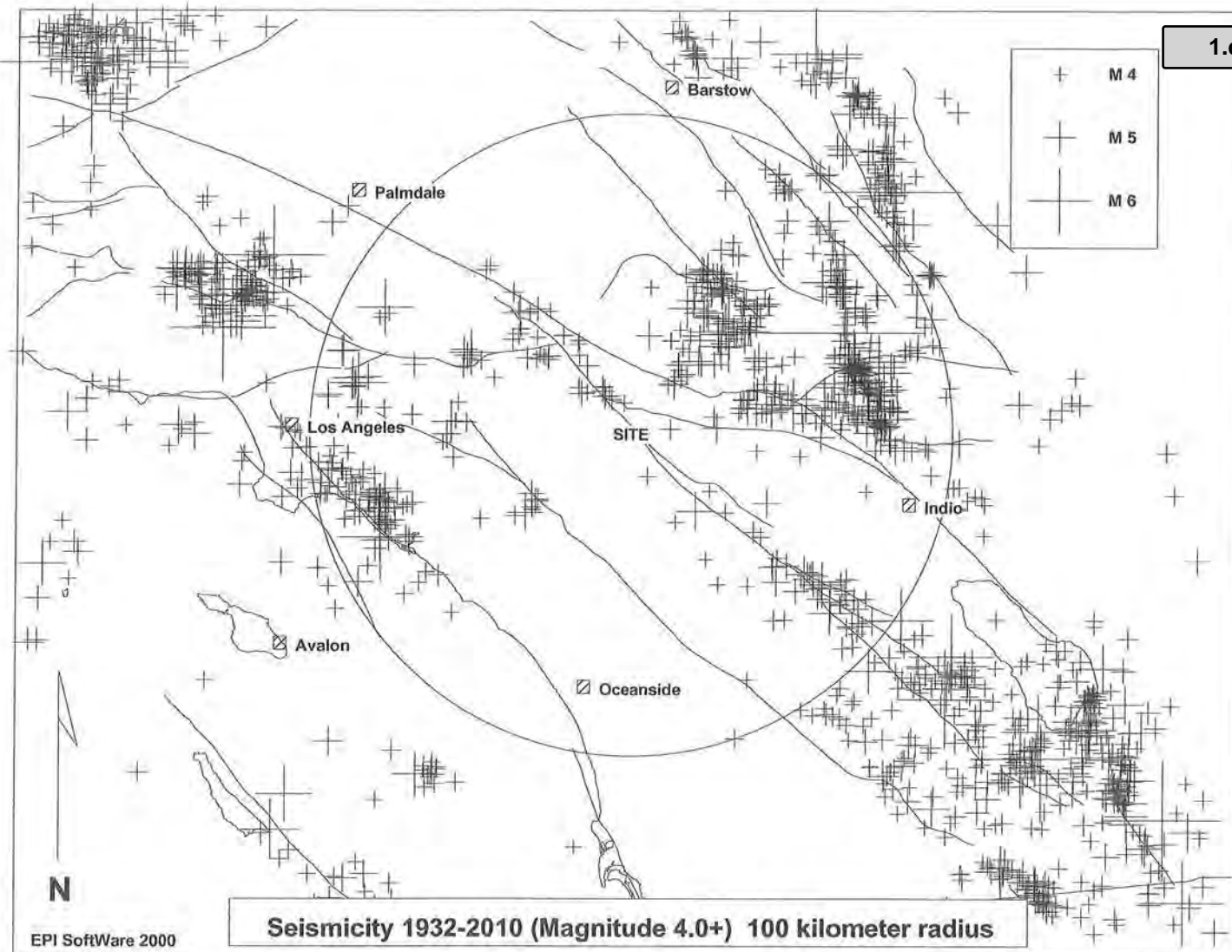
REGIONAL GEOLOGIC MAP

(Morton & Matti, 199

PROJECT:	PROPOSED GAS STATION AND RESTAURANT, MORENO VALLEY, CALIFORNIA	PROJECT NO:	12765.
CLIENT:	MR. PARMJIT SINGH	ENCLOSURE:	A

LOR Geotechnical Group, Inc.

DATE:	OCTOBER 201
SCALE:	1" = 2000'



SITE LOCATION: 33.9169 LAT. -117.1561 LONG.

MINIMUM LOCATION QUALITY: C

TOTAL # OF EVENTS ON PLOT: 1506

TOTAL # OF EVENTS WITHIN SEARCH RADIUS: 603

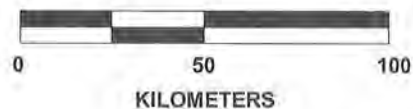
MAGNITUDE DISTRIBUTION OF SEARCH RADIUS EVENTS:

4.0- 4.9 : 543
 5.0- 5.9 : 55
 6.0- 6.9 : 4
 7.0- 7.9 : 1
 8.0- 8.9 : 0

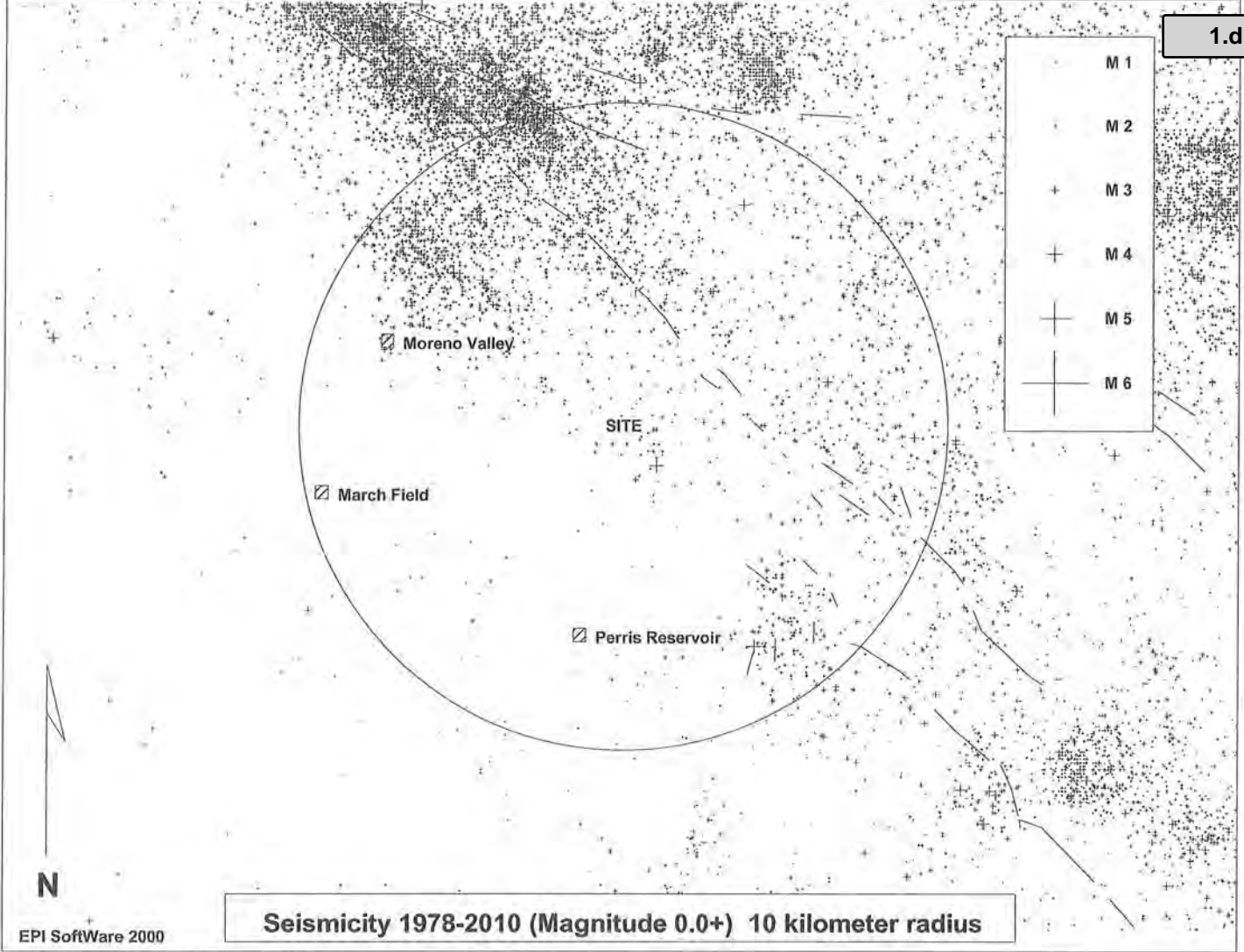
CLOSEST EVENT: 4.1 ON SATURDAY, FEBRUARY 13, 2011 LOCATED APPROX. 10 KILOMETERS NORTH OF THE SITE

LARGEST 5 EVENTS:

7.3 ON SUNDAY, JUNE 28, 1992 LOCATED APPROX. 73 KILOMETERS NORTHEAST OF THE SITE
 6.4 ON SATURDAY, MARCH 11, 1933 LOCATED APPROX. 84 KILOMETERS SOUTHWEST OF THE SITE
 6.3 ON SUNDAY, JUNE 28, 1992 LOCATED APPROX. 43 KILOMETERS NORTHEAST OF THE SITE
 6.1 ON THURSDAY, APRIL 23, 1992 LOCATED APPROX. 77 KILOMETERS EAST OF THE SITE
 6.0 ON SATURDAY, DECEMBER 04, 1941 LOCATED APPROX. 76 KILOMETERS EAST OF THE SITE



ENCLOSURE A-4



Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

SITE LOCATION: 33.9169 LAT. -117.1561 LONG.

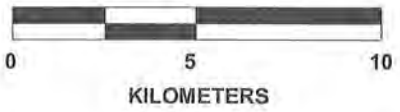
MINIMUM LOCATION QUALITY: A

TOTAL # OF EVENTS ON PLOT: 11223

TOTAL # OF EVENTS WITHIN SEARCH RADIUS: 2981

MAGNITUDE DISTRIBUTION OF SEARCH RADIUS EVENTS:

- 0.0- .9 : 420
- 1.0- 1.9 : 2184
- 2.0- 2.9 : 363
- 3.0- 3.9 : 13
- 4.0- 4.9 : 1
- 5.0- 5.9 : 0
- 6.0- 6.9 : 0
- 7.0- 7.9 : 0
- 8.0- 8.9 : 0



CLOSEST EVENT: 1.0 ON FRIDAY, NOVEMBER 21, 2008 LOCATED APPROX. .3 KILOMETER OF THE SITE

LARGEST 5 EVENTS:

- 4.1 ON SATURDAY, FEBRUARY 13, 2010 LOCATED APPROX. 9 KILOMETERS NORTH OF THE SITE
- 3.8 ON MONDAY, JULY 10, 2006 LOCATED APPROX. 7 KILOMETERS SOUTHEAST OF THE SITE
- 3.8 ON THURSDAY, SEPTEMBER 12, 1996 LOCATED APPROX. 1 KILOMETERS SOUTHEAST OF THE SITE
- 3.6 ON SATURDAY, JUNE 04, 1988 LOCATED APPROX. 7 KILOMETERS NORTHEAST OF THE SITE
- 3.5 ON TUESDAY, OCTOBER 13, 1987 LOCATED APPROX. 7 KILOMETERS NORTHWEST OF THE SITE

ENCLOSURE A-5

APPENDIX B

Field Investigation Program and Boring Logs

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

APPENDIX B FIELD INVESTIGATION

Subsurface Exploration

Our subsurface exploration of the site consisted of drilling a total of three exploratory borings to depths ranging from approximately 26.5 to 51.5 feet below the existing ground surface using a Mobile B-61 drill rig on October 26, 2018. The approximate locations of the borings are shown on Enclosure A-2.

The drilling exploration was conducted using a Mobile B-61 drill rig equipped with 8-inch diameter hollow stem augers. The soils encountered within the borings were continuously logged by a geologist from this firm who inspected the site, created detailed logs of the borings, obtained undisturbed, as well as disturbed, soil samples for evaluation and testing, and classified the soils by visual examination in accordance with the Unified Soil Classification System.

Relatively undisturbed samples of the subsoils were typically obtained at a maximum interval of 5 feet. The samples were recovered by using a California split barrel sampler of 2.40-inch inside diameter and 3.25-inch outside diameter from the ground surface to the maximum depths attained. The samplers were driven by a 140-pound automatic trip hammer dropped from a height of 30 inches. The number of hammer blows required to drive the sampler into the ground the final 12 inches were recorded and further converted to an equivalent SPT N-values, which are included in the boring logs, Enclosures B-1 through B-3.

The undisturbed soil samples were retained in brass sample rings of 2.42 inches in diameter and 1.00 inch in height, and placed in sealed plastic containers. Disturbed soil samples were obtained at selected levels within the borings and placed in sealed containers for transport to our geotechnical laboratory.

All samples obtained were taken to our geotechnical laboratory for storage and testing. Detailed logs of the borings are presented on the enclosed Boring Logs, Enclosures B-1 through B-3. A Boring Log Legend is presented on Enclosure B-i. A Soil Classification Chart is presented as Enclosure B-ii.

CONSISTENCY OF SOIL

SAMPLE KEY

SANDS

<u>SPT BLOWS</u>	<u>CONSISTENCY</u>
0-4	Very Loose
4-10	Loose
10-30	Medium Dense
30-50	Dense
Over 50	Very Dense

Symbol

Description



INDICATES CALIFORNIA SPLIT SPOON SOIL SAMPLE

INDICATES BULK SAMPLE

INDICATES SAND CONE OR NUCLEAR DENSITY TEST

INDICATES STANDARD PENETRATION TEST (SPT) SOIL SAMPLE

COHESIVE SOILS

<u>SPT BLOWS</u>	<u>CONSISTENCY</u>
0-2	Very Soft
2-4	Soft
4-8	Medium
8-15	Stiff
15-30	Very Stiff
30-60	Hard
Over 60	Very Hard

TYPES OF LABORATORY TESTS

- 1 Atterberg Limits
- 2 Consolidation
- 3 Direct Shear (undisturbed or remolded)
- 4 Expansion Index
- 5 Hydrometer
- 6 Organic Content
- 7 Proctor (4", 6", or Cal216)
- 8 R-value
- 9 Sand Equivalent
- 10 Sieve Analysis
- 11 Soluble Sulfate Content
- 12 Swell
- 13 Wash 200 Sieve

BORING LOG LEGEND

PROJECT:	PROPOSED GAS STATION CANOPY & RESTAURANT	PROJECT NO.: 12765.11
CLIENT:	PARMJIT SINGH	ENCLOSURE: B-i
LOR Geotechnical Group, Inc.		DATE: OCTOBER 2018

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS
			GRAPH	LETTER	
COARSE GRAINED SOILS <small>MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE</small>	GRAVEL AND GRAVELLY SOILS <small>MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE</small>	CLEAN GRAVELS <small>(LITTLE OR NO FINES)</small>		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES <small>(APPRECIABLE AMOUNT OF FINES)</small>		GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES <small>(APPRECIABLE AMOUNT OF FINES)</small>		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
	SAND AND SANDY SOILS <small>MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE</small>	CLEAN SANDS <small>(LITTLE OR NO FINES)</small>		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		SANDS WITH FINES <small>(APPRECIABLE AMOUNT OF FINES)</small>		SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
		SANDS WITH FINES <small>(APPRECIABLE AMOUNT OF FINES)</small>		SM	SILTY SANDS, SAND - SILT MIXTURES
FINE GRAINED SOILS <small>MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE</small>	SILTS AND CLAYS <small>LIQUID LIMIT LESS THAN 50</small>	CLEAN SANDS <small>(LITTLE OR NO FINES)</small>		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
		SANDS WITH FINES <small>(APPRECIABLE AMOUNT OF FINES)</small>		CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
		SANDS WITH FINES <small>(APPRECIABLE AMOUNT OF FINES)</small>		OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS <small>LIQUID LIMIT GREATER THAN 50</small>	SANDS WITH FINES <small>(APPRECIABLE AMOUNT OF FINES)</small>		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
		SANDS WITH FINES <small>(APPRECIABLE AMOUNT OF FINES)</small>		CH	INORGANIC CLAYS OF HIGH PLASTICITY
		SANDS WITH FINES <small>(APPRECIABLE AMOUNT OF FINES)</small>		OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

PARTICLE SIZE LIMITS

BOULDERS	COBBLES	GRAVEL		SAND			SILT OR CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE	
12"	3"	3/4"	No. 4	No. 10	No. 40	200	
<small>(U.S. STANDARD SIEVE SIZE)</small>							

SOIL CLASSIFICATION CHART

PROJECT	PROPOSED GAS STATION CANOPY & RESTAURANT	PROJECT NO. 12765.11
CLIENT:	PARMJIT SINGH	ENCLOSURE: B-ii
<h2 style="margin: 0;">LOR Geotechnical Group, Inc.</h2>		DATE: OCTOBER 2018

LOG OF BORING B-1

TEST DATA

DEPTH IN FEET	TEST DATA				SAMPLE TYPE	LITHOLOGY	U.S.C.S.	DESCRIPTION
	SPT BLOW COUNTS	LABORATORY TESTS	MOISTURE CONTENT (%)	DRY DENSITY (PCF)				
0								
11	1, 3, 4, 7, 11	4.0	96.8			ML CL	@ 0 feet, FILL/TOPSOIL: SANDY SILT , approximately 5% gravel to 2", 10% coarse grained sand, 10% medium grained sand, 15% fine grained sand, 60% silty fines with trace clay, gray-brown, dry.	
5	8 19	2 7.3 8.7	89.7 101.0			ML	@ 2 feet, ALLUVIUM: LEAN CLAY with SAND , approximately 5% coarse grained sand, 10% medium grained sand, 15% fine grained sand, 70% clayey fines of low plasticity, gray-brown, dry, some pinhole and slightly larger porosity.	
10	16 21	2 9.0 10.3	100.1 102.2				@ 5 feet, SANDY SILT , approximately approximately 5% coarse grained sand, 10% medium grained sand, 15% fine grained sand, 70% silty fines with trace clay, gray-brown, some thin calcite stringers, porous and dry.	
15	25	2 8.3	99.7				@ 15 feet, moderately calcified, tan-white, remains porous and dry.	
20	42	10.5	106.4					
25	97 for 11"	11.3	116.7			CL	@ 25 feet, LEAN CLAY with SAND , approximately 5% coarse grained sand, 10% medium grained sand, 10% fine grained sand, 75% clayey fines of low plasticity, damp to moist, trace pinhole porosity, slightly indurated, red-brown.	
30	76	8.6	123.8				@ 30 feet, difficult drilling, water added to facilitate drilling.	
35	58	3.9	117.7				@ 35 feet, becomes moderately calcified, damp, tan-white.	
40	60	7.7	114.2				@ 40 feet, becomes red-brown, damp, some thin calcite stringers.	
45	75	8.6	119.4				@ 45 feet, decrease in clay content, trace calcite stringers.	
50	70	5.5	115.9			SM	@ 50 feet, SILTY SAND , approximately 5% gravel to 1/2", 20% coarse grained sand, 25% medium grained sand, 30% fine grained sand, 20% silty fines, yellow-brown, dry to damp.	
55							END OF BORING @ 51.5'	
							Fill to 2' No groundwater No bedrock	


PROJECT: Proposed Gas Station Canopy & Restaurant		PROJECT NUMBER: 12765.11	
CLIENT: Parmjit Singh		ELEVATION:	
LOR GEOTECHNICAL GROUP INC.		DATE DRILLED: October 26, 2018	
		EQUIPMENT: Mobile B-61	
		HOLE DIA.: 8"	ENCLOSURE: B-1

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

LOG OF BORING B-2

TEST DATA							U.S.C.S.	DESCRIPTION
DEPTH IN FEET	SPT BLOW COUNTS	LABORATORY TESTS	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	SAMPLE TYPE	LITHOLOGY		
0							ML	@ 0 feet, <u>FILL</u> : SANDY SILT, approximately 5% gravel to 1/2", 5% coarse grained sand, 10% medium grained sand, 10% fine grained sand, 70% silty fines, gray-brown, dry.
11	11		6.6	107.0			SM	@ 2 feet, SILTY SAND, approximately 25% coarse grained sand, 25% medium grained sand, 25% fine grained sand, 25% silty fines, brown, damp to moist.
5	6		11.2	96.5			ML	@ 5 feet, <u>ALLUVIUM</u> : SANDY SILT, approximately 15% fine grained sand, 85% silty fines, moist, brown, some pinhole porosity.
	12	2	8.1	97.3				@ 7 feet, becomes tan, dry, slightly larger than pinhole porosity.
10	18		7.1	104.9				@ 10 feet, trace thin calcite stringers.
	26		8.6	105.5				
15	33		6.8	102.0				@ 15 feet, becomes moderately calcite, tan-white, remains dry and slightly porous.
20	40		17.2	95.0				@ 20 feet, becomes moist.
25	59		8.3	117.0			CL	@ 25 feet, LEAN CLAY with SAND, approximately 5% coarse grained sand, 10% medium grained sand, 10% fine grained sand, 75% clayey fines of low plasticity, damp, red-brown, slightly indurated, some thin calcite stringers, trace pinhole porosity.
30								END OF BORING @ 26.5' Fill to 5' No groundwater No bedrock

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

PROJECT: Proposed Gas Station Canopy & Restaurant		PROJECT NUMBER: 12765.11	
CLIENT: Parmjit Singh		ELEVATION:	
		DATE DRILLED: October 26, 2018	
		EQUIPMENT: Mobile B-61	
		HOLE DIA.: 8"	ENCLOSURE: B-2

LOG OF BORING B-3

TEST DATA

DEPTH IN FEET	SPT BLOW COUNTS	LABORATORY TESTS	TEST DATA		SAMPLE TYPE	LITHOLOGY	U.S.C.S.	DESCRIPTION
			MOISTURE CONTENT (%)	DRY DENSITY (PCF)				
0								
6			10.9	96.3			ML	@ 0 feet, <u>FILL</u> SANDY SILT, approximately 5% coarse grained sand, 5% medium grained sand, 15% fine grained sand, 75% silty fines, gray-brown, dry.
2								@ 2 feet, <u>ALLUVIUM</u> ; SANDY SILT, approximately 5% coarse grained sand, 5% medium grained sand, 15% fine grained sand, 75% silty fines, brown, damp, some pinhole porosity and thin calcite stringers.
5	8		12.5	107.3				@ 5 feet, trace pinhole porosity, slightly calcified, tan-white, damp.
10	10		12.1	104.3				@ 7 feet, much less calcification as thin stringers, remains porous with pinhole and slightly larger porosity, damp.
11			11.9	105.3				
16			8.1	106.3				
15	27		17.2	99.5				@ 15 feet, slight increase in calcification, gray-white, remains porous, moist.
20	27		17.1	101.3				
25	62		9.8	122.0			CL	@ 25 feet, <u>LEAN CLAY</u> with SAND, approximately 5% coarse grained sand, 5% medium grained sand, 10% fine grained sand, 80% clayey fines of low plasticity, red-brown, damp to moist, trace pinhole porosity, trace thin calcite stringers, slightly indurated.
								END OF BORING @ 26.5'
								Fill to 2' No groundwater No bedrock

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

PROJECT: Proposed Gas Station Canopy & Restaurant		PROJECT NUMBER: 12765.11	
CLIENT: Parmjit Singh		ELEVATION:	
LOR GEOTECHNICAL GROUP INC.		DATE DRILLED: October 26, 2018	
		EQUIPMENT: Mobile B-61	
		HOLE DIA.: 8"	ENCLOSURE: B-3

APPENDIX C

Laboratory Testing Program and Test Results

APPENDIX C LABORATORY TESTING

General

Selected soil samples obtained from the borings were tested in our geotechnical laboratory to evaluate the physical properties of the soils affecting foundation design and construction procedures. The laboratory testing program performed in conjunction with our investigation included moisture content, dry density, laboratory compaction, consolidation, direct shear, sieve analysis, sand equivalent, R-value, expansion index, Atterberg limits, and soluble sulfate content. Descriptions of the laboratory tests are presented in the following paragraphs:

Moisture Density Tests

The moisture content and dry density information provides an indirect measure of soil consistency for each stratum, and can also provide a correlation between soils on this site. The dry unit weight and field moisture content were determined for selected undisturbed samples, in accordance with ASTM D 2921 and ASTM D 2216, respectively, and the results are shown on the boring logs, Enclosures B-1 through B-3, for convenient correlation with the soil profile.

Laboratory Compaction

Selected soil samples were tested in the laboratory to determine compaction characteristics using the ASTM D 1557 compaction test method. The results are presented in the following table:

LABORATORY COMPACTION				
Boring Number	Sample Depth (feet)	Soil Description U.S.C.S.	Maximum Dry Density (pcf)	Optimum Moisture Content (percent)
B-1	1-3	(CL) Lean Clay with Sand	126.5	10.5

Consolidation Tests

The apparatus used for the consolidation tests (odometer) is designed to test a one-inch high portion of the undisturbed soil sample as contained in a sample ring. Porous stones and filler paper are placed in contact with the top and bottom of the specimen to permit the addition or release of water. Loads are applied to the test specimen in specified increments, and the resulting axial deformations are recorded. The results are plotted as log of axial pressure versus consolidation or compression, expressed as strain or sample height.

Samples are tested at field and greater-than field moisture contents. The results are shown on Enclosures C-1 through C-4.

Direct Shear Tests

Shear tests are performed in general accordance with ASTM D 3080 with a direct shear machine at a constant rate-of-strain (0.04 inches/minute). The machine is designed to test a sample partially extruded from a sample ring in single shear. Samples are tested at varying normal loads in order to evaluate the shear strength parameters, angle of internal friction and cohesion. Samples are tested in remolded condition (90 percent relative compaction per ASTM D 1557) and soaked, to represent the worse case conditions expected in the field.

The results of the shear tests are presented in the following table:

DIRECT SHEAR TESTS				
Boring Number	Sample Depth (feet)	Soil Description U.S.C.S.	Angle of Internal Friction (degrees)	Apparent Cohesion (psf)
B-1	1-3	(CL) Lean Clay with Sand	27	250

Sieve Analysis

A quantitative determination of the grain size distribution was performed for selected samples in accordance with the ASTM D 422 laboratory test procedure. The determination is performed by passing the soil through a series of sieves, and recording the weights of retained particles on each screen. The results of the sieve analyses are presented graphically on Enclosure C-5.

Sand Equivalent

The sand equivalent of selected soils were evaluated using the California Sand Equivalent Test Method, Caltrans Number 217. The results of the sand equivalent tests are presented with the grain size distribution analyses on Enclosure C-5.

R-Value Test

Soil samples were obtained at probable pavement subgrade level and sieve analysis and sand equivalent tests were conducted. Based on these indicator tests, a selected soil sample was tested to determine its R-value using the California R-Value Test Method, Caltrans Number 301. The results of the sieve analysis, sand equivalent, and R-value tests are presented on Enclosure C-5.

Expansion Index Tests

Remolded samples are tested to determine their expansion potential in accordance with the Expansion Index (EI) test. The test is performed in accordance with the Uniform Building Code Standard 18-2. The test results are presented in the following table:

EXPANSION INDEX TESTS				
Boring Number	Sample Depth (feet)	Soil Description U.S.C.S.	Expansion Index (EI)	Expansion Potential
B-1	1-3	(CL) Lean Clay with Sand	Low	34
Expansion Index: 0-20 21-50 51-90 91-130				
Expansion Potential: Very low Low Medium High				

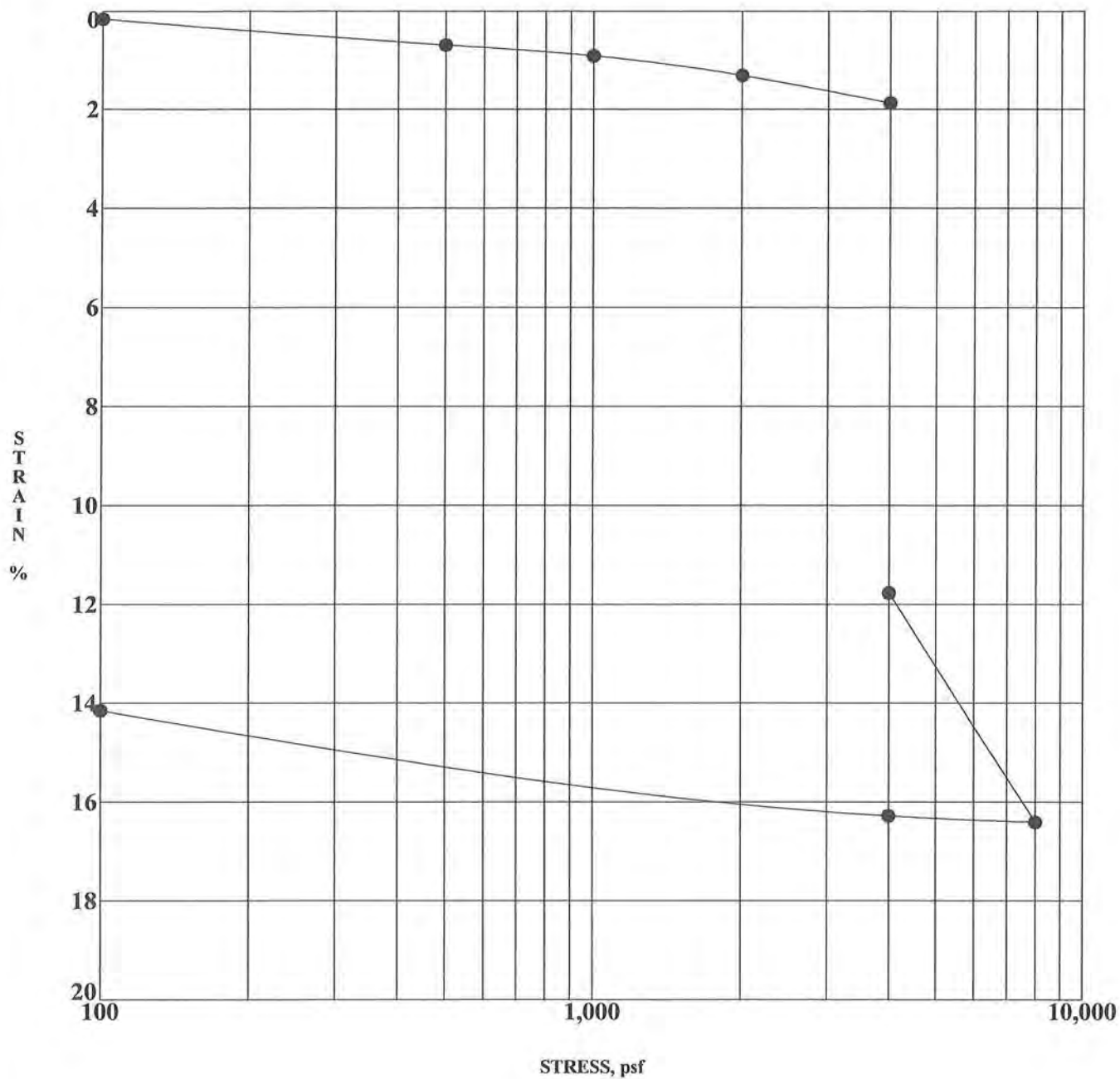
Atterberg Limits

Selected samples of the son-site fine grained soils were tested for their Atterberg limits in accordance with ASTM D 4318. The results of these tests are presented on Enclosure C-6.

Soluble Sulfate Content Tests

The soluble sulfate content of selected subgrade soils were evaluated. The concentration of soluble sulfates in the soils was determined by measuring the optical density of a barium sulfate precipitate. The precipitate results from a reaction of barium chloride with water extractions from the soil samples. The measured optical density is correlated with readings on precipitates of known sulfate concentrations. The test results are presented on the following table:

SOLUBLE SULFATE CONTENT TESTS			
Boring Number	Sample Depth (feet)	Soil Description U.S.C.S.	Sulfate Content (percent by weight)
B-1	1-3	(CL) Lean Clay with Sand	<0.005

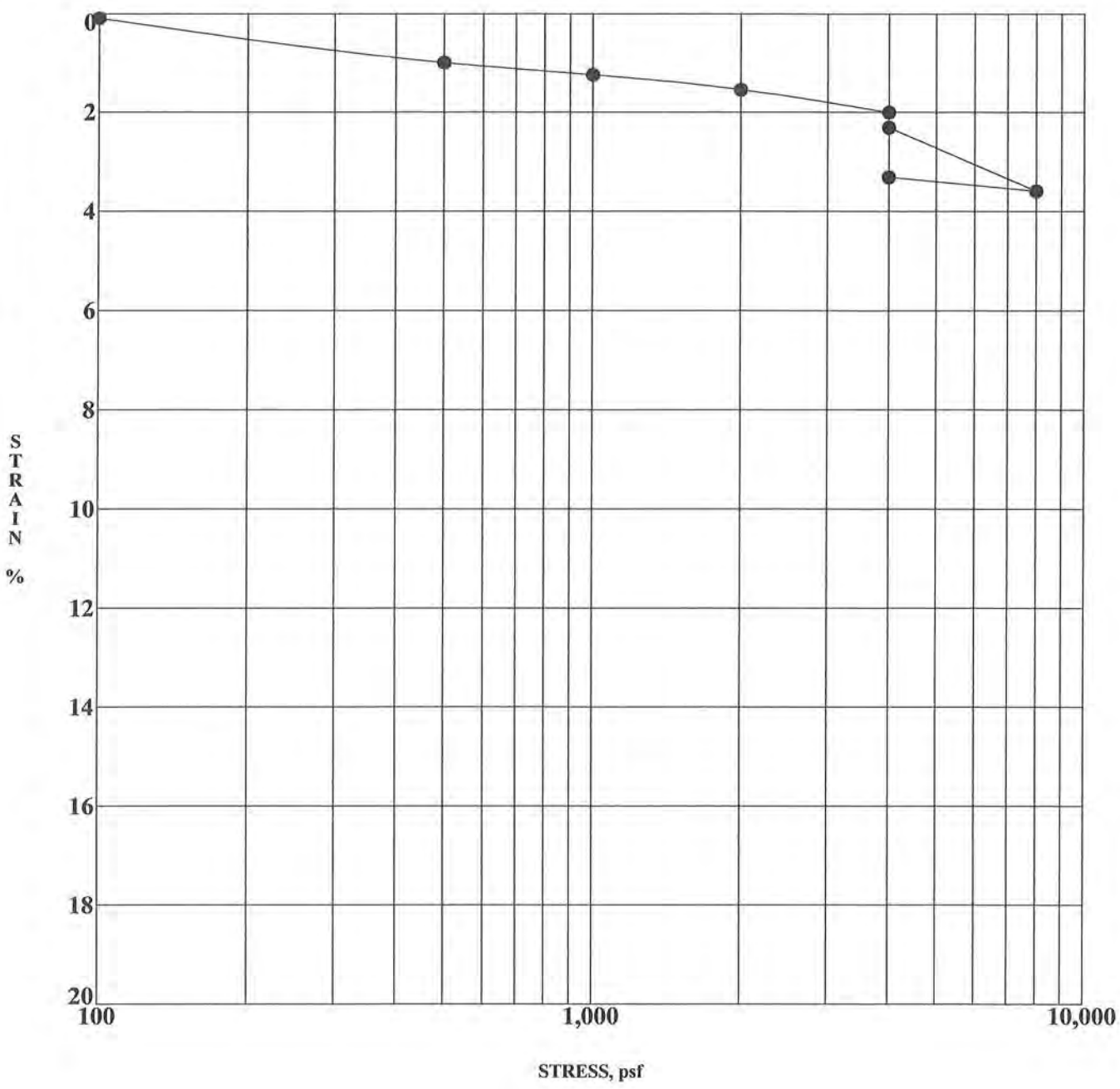


Specimen Identification		Classification	DD	MC%
●	B-1 5.0	(ML) Sandy Silt	94	4

PROJECT Proposed Gas Station Canopy & Restaurant, Existing Farm Market PROJECT NO. 12765.11
 DATE 11/16/18

CONSOLIDATION TEST
 LOR Geotechnical Group, Inc.

ENCLOSURE C-1



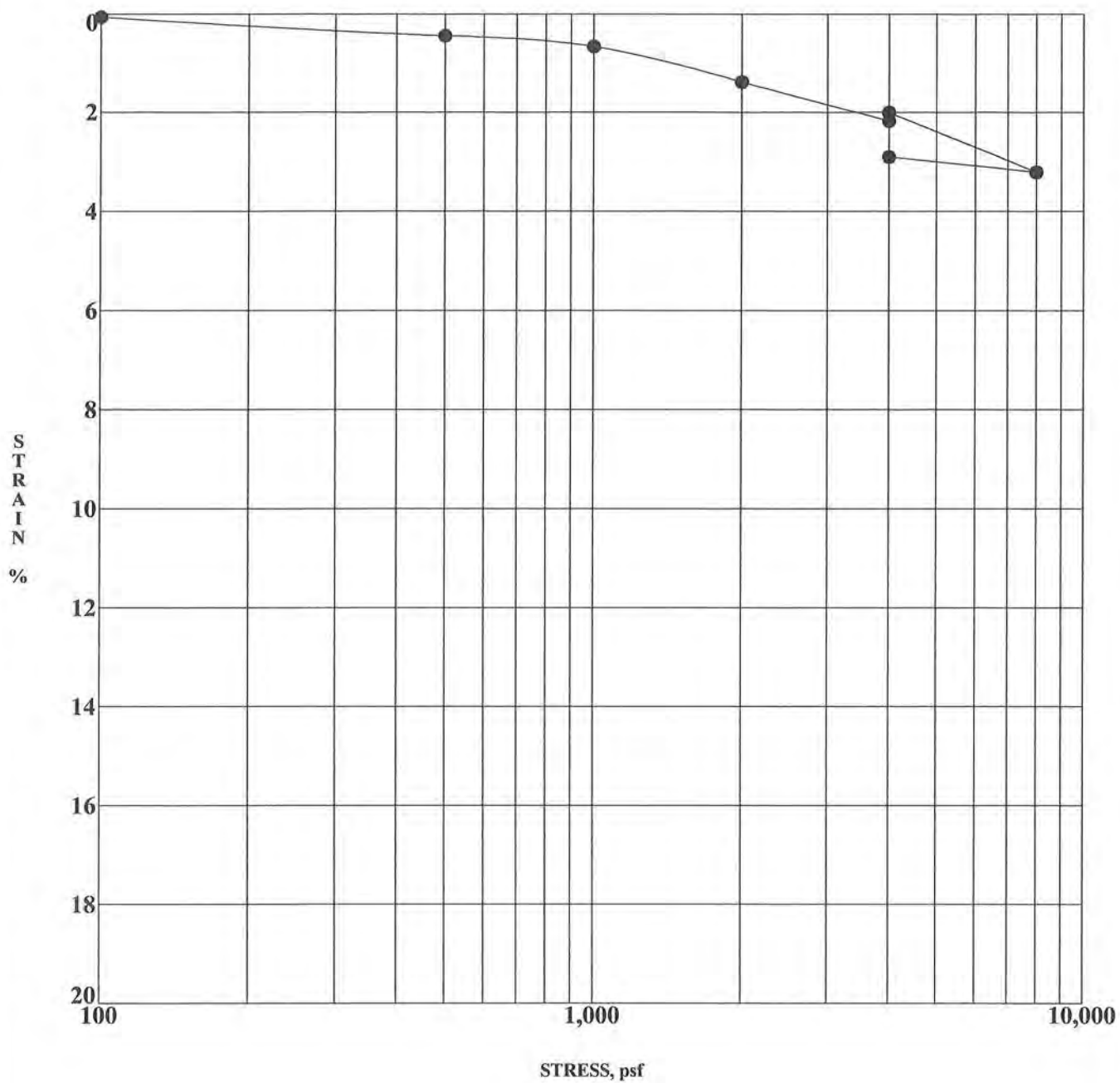
Specimen Identification	Classification	DD	MC%
● B-1 10.0	(ML) Sandy Silt	107	9

PROJECT Proposed Gas Station Canopy & Restaurant, Existing Farm Market PROJECT NO. 12765.11
 DATE 11/16/18

CONSOLIDATION TEST
 LOR Geotechnical Group, Inc.

ENCLOSURE C-2

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)



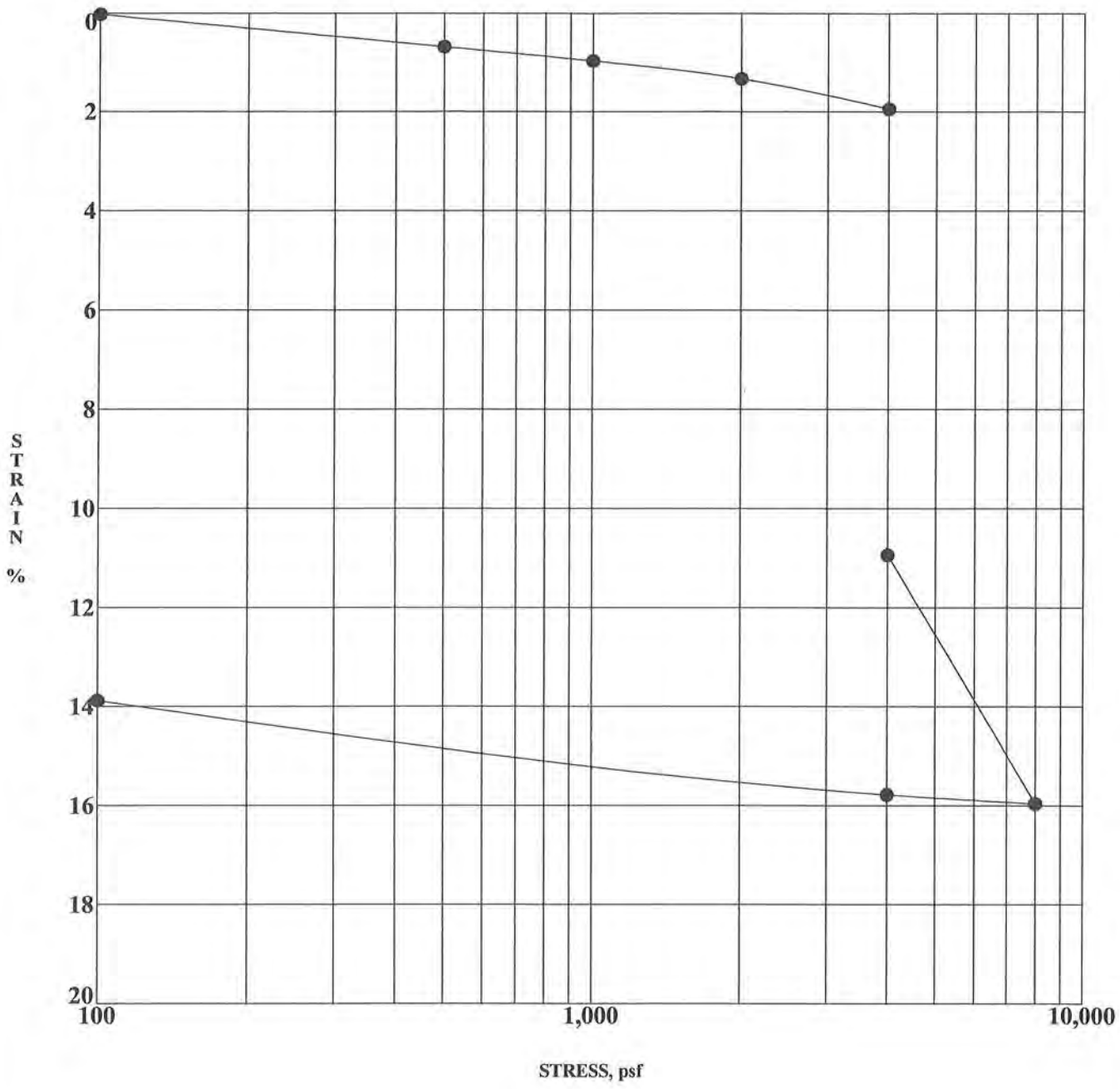
Specimen Identification			Classification	DD	MC%
●	B-1	15.0	(ML) Sandy Silt	102	8

PROJECT Proposed Gas Station Canopy & Restaurant, Existing Farm Market PROJECT NO. 12765.11
 DATE 11/16/18

CONSOLIDATION TEST
 LOR Geotechnical Group, Inc.

ENCLOSURE C-3

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)



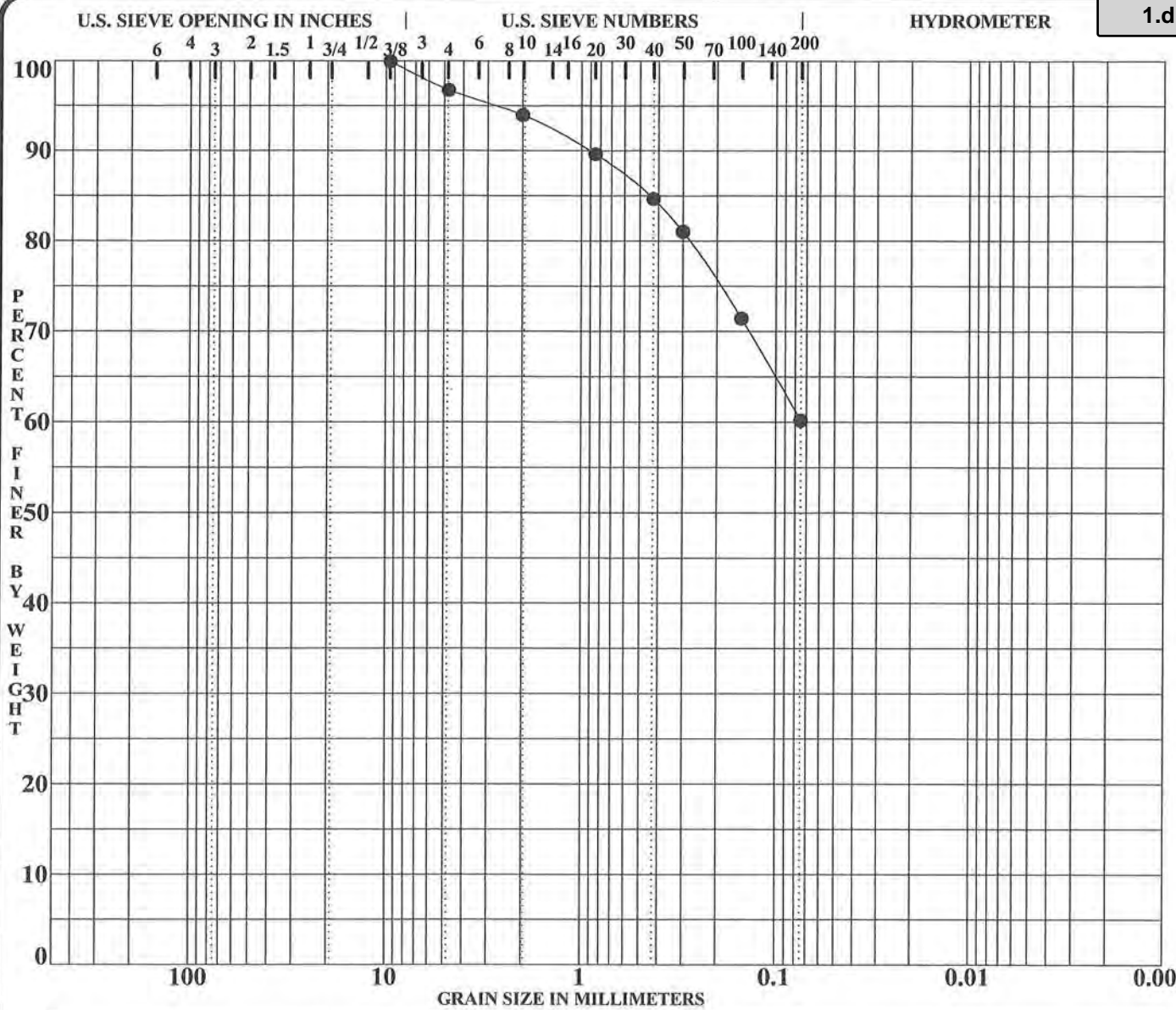
Specimen Identification	Classification	DD	MC%
● B-2 7.0	(ML) Sandy Silt	91	8

PROJECT Proposed Gas Station Canopy & Restaurant, Existing Farm Market PROJECT NO. 12765.11
 DATE 11/16/18

CONSOLIDATION TEST
 LOR Geotechnical Group, Inc.

ENCLOSURE C-4

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification	Soil Classification	SE	RV	PL	PI	Cc	Cu
● RV-1 @ 0-3 ft	(ML) Sandy Silt	8	19				

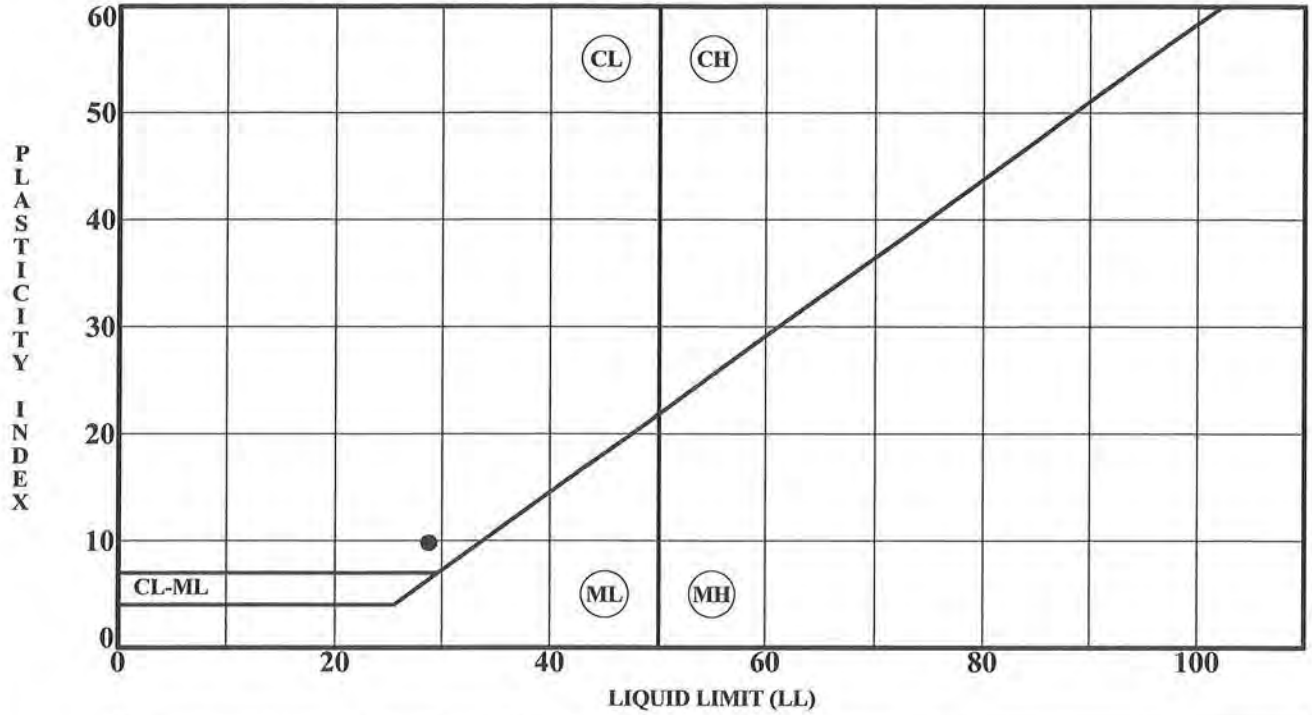
Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● RV-1 @ 0-3 ft	9.50				3.2	36.6	60.2	

PROJECT *Proposed Gas Station Canopy & Restaurant, Existing Farm Market* PROJECT NO. 12765.11
 DATE 11/16/18

GRADATION CURVES
 LOR Geotechnical Group, Inc.

ENCLOSURE C-5

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)



Specimen Identification	LL	PL	PI	Fines	Soil Classification
● B-1 @ 1 - 3 ft	29	19	10		(CL) Lean Clay with Sand

PROJECT Proposed Gas Station Canopy & Restaurant

PROJECT NO. 12765.11

DATE 11/20/18

ATTERBERG LIMITS' RESULTS
 LOR Geotechnical Group, Inc.

ENCLOSURE C-6

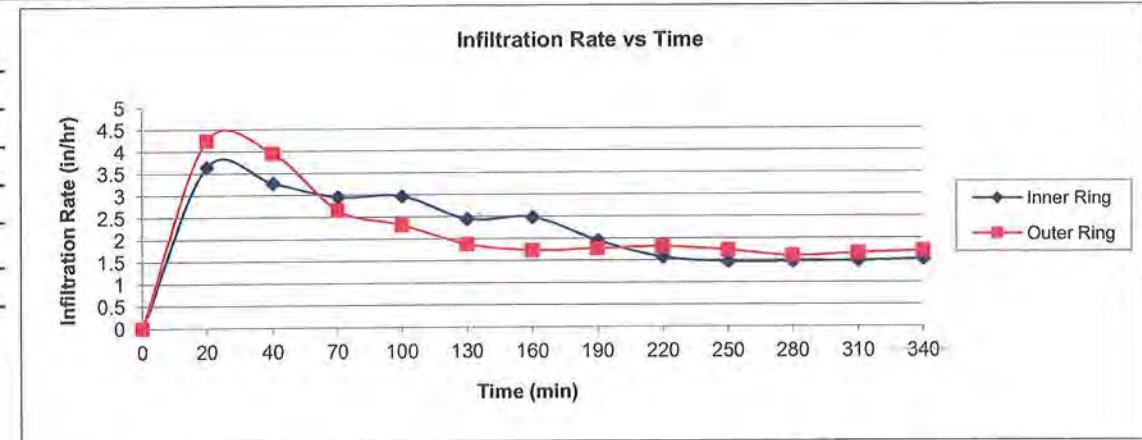
Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

APPENDIX D
Infiltration Test Results

Attachment: Appendix F to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

DOUBLE RING INFILTROMETER TEST DATA

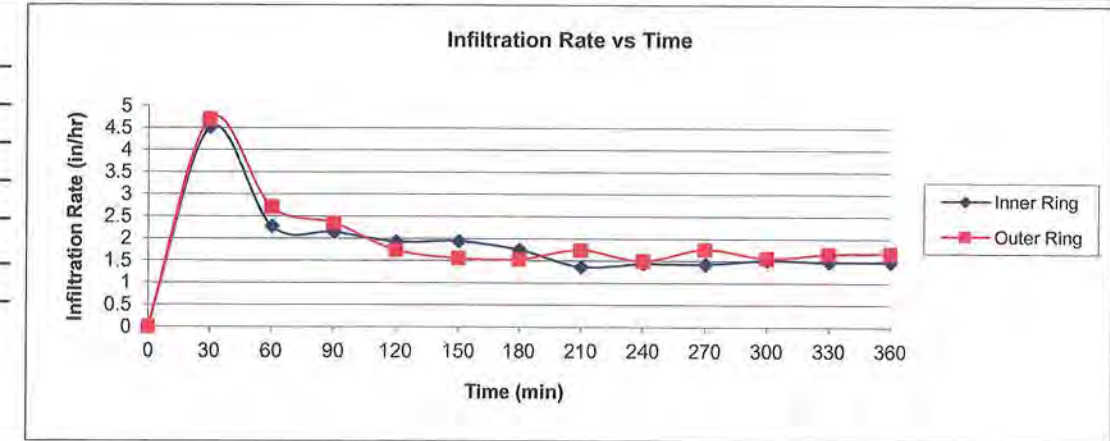
Project:	Proposed Gas Station and Restaurant	Test Date:	October 29, 2018
Project No.:	12765.11	Test Hole No.:	DRI-1
Soil Classification:	(ML) Sandy Silt	Test Hole Diameter:	12 in. inner, 24 in. annular
Depth of Test Hole:	4 ft.	Date Excavated:	October 29, 2018
Liquid Used:	Tap Water	pH:	7.8
Area of Rings:	Inner = 0.785 ft ² , Annular 2.36 ft ²	Depth of Water in Rings:	3.5 in
Tested By:	A.L.	Ring Penetration:	3.5 in
Liquid Level Maintained Using:	Vacuum Seal		
Depth to Water Table:	100 ft		



TRIAL NO.	TEST PERIOD																REMARKS
	INNER			ANNULAR SPACE			WATER USED (lbs.)		WATER USED (gal)		INFILTRATION RATE (gal/sf.day)		INFILTRATION RATE (in/hr)		LIQUID TEMP (°F)		
	TIME	TIME INTERVAL (minutes)	TOTAL ELAPSED TIME (minutes)	TIME	TIME INTERVAL (minutes)	TOTAL ELAPSED TIME (minutes)	inner	annular space	inner	annular space	inner	annular space	inner	annular space			
1	S	8:40	20	20	S	8:40	20	20	4.94	17.28	0.593	2.074	54.4	63.3	3.6	4.2	64
	E	9:00			E	9:00											65
2	S	9:00	20	40	S	9:00	20	40	4.44	16.11	0.533	1.934	48.9	59.0	3.3	4.0	66
	E	9:20			E	9:20											66
3	S	9:22	30	70	S	9:22	30	70	6.01	16.24	0.721	1.950	44.1	39.7	3.0	2.7	67
	E	9:52			E	9:52											67
4	S	9:52	30	100	S	9:52	30	100	6.03	14.14	0.724	1.697	44.3	34.5	3.0	2.3	68
	E	10:22			E	10:22											68
5	S	10:26	30	130	S	10:26	30	130	4.97	11.48	0.597	1.378	36.5	28.0	2.4	1.9	69
	E	10:56			E	10:56											69
6	S	10:56	30	160	S	10:56	30	160	5.04	10.58	0.605	1.270	37.0	25.8	2.5	1.7	71
	E	11:26			E	11:26											72
7	S	11:26	30	190	S	11:26	30	190	3.96	10.81	0.475	1.298	29.1	26.4	1.9	1.8	73
	E	11:56			E	11:56											74
8	S	12:00	30	220	S	12:00	30	220	3.19	11.08	0.383	1.330	23.4	27.1	1.6	1.8	75
	E	12:30			E	12:30											75
9	S	12:30	30	250	S	12:30	30	250	2.98	10.57	0.358	1.269	21.9	25.8	1.5	1.7	76
	E	13:00			E	13:00											76
10	S	13:00	30	280	S	13:00	30	280	2.99	9.77	0.359	1.173	21.9	23.9	1.5	1.6	77
	E	13:30			E	13:30											77
11	S	13:30	30	310	S	13:30	30	310	3.03	10.13	0.364	1.216	22.2	24.7	1.5	1.7	78
	E	14:00			E	14:00											78
12	S	14:00	30	340	S	14:00	30	340	3.09	10.43	0.371	1.252	22.7	25.5	1.5	1.7	78
	E	14:30			E	14:30											78

DOUBLE RING INFILTROMETER TEST DATA

Project:	Proposed Gas Station and Restaurant	Test Date:	October 29, 2018
Project No.:	12765.11	Test Hole No.:	DRI-2
Soil Classification:	(ML) Sandy Silt	Test Hole Diameter:	12 in. inner, 24 in. annular
Depth of Test Hole:	4 ft	Date Excavated:	October 29, 2018
Liquid Used:	Tap Water	pH:	7.8
Area of Rings:	Inner = 0.785 ft ² , Annular 2.36 ft ²	Depth of Water in Rings:	4 in
Tested By:	A.L.	Ring Penetration:	3.5 in
Liquid Level Maintained Using:	Vacuum Seal		
Depth to Water Table:	100 ft		



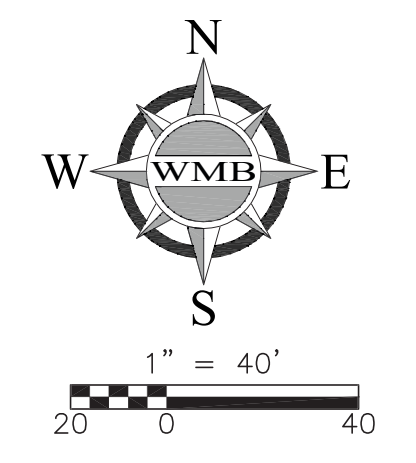
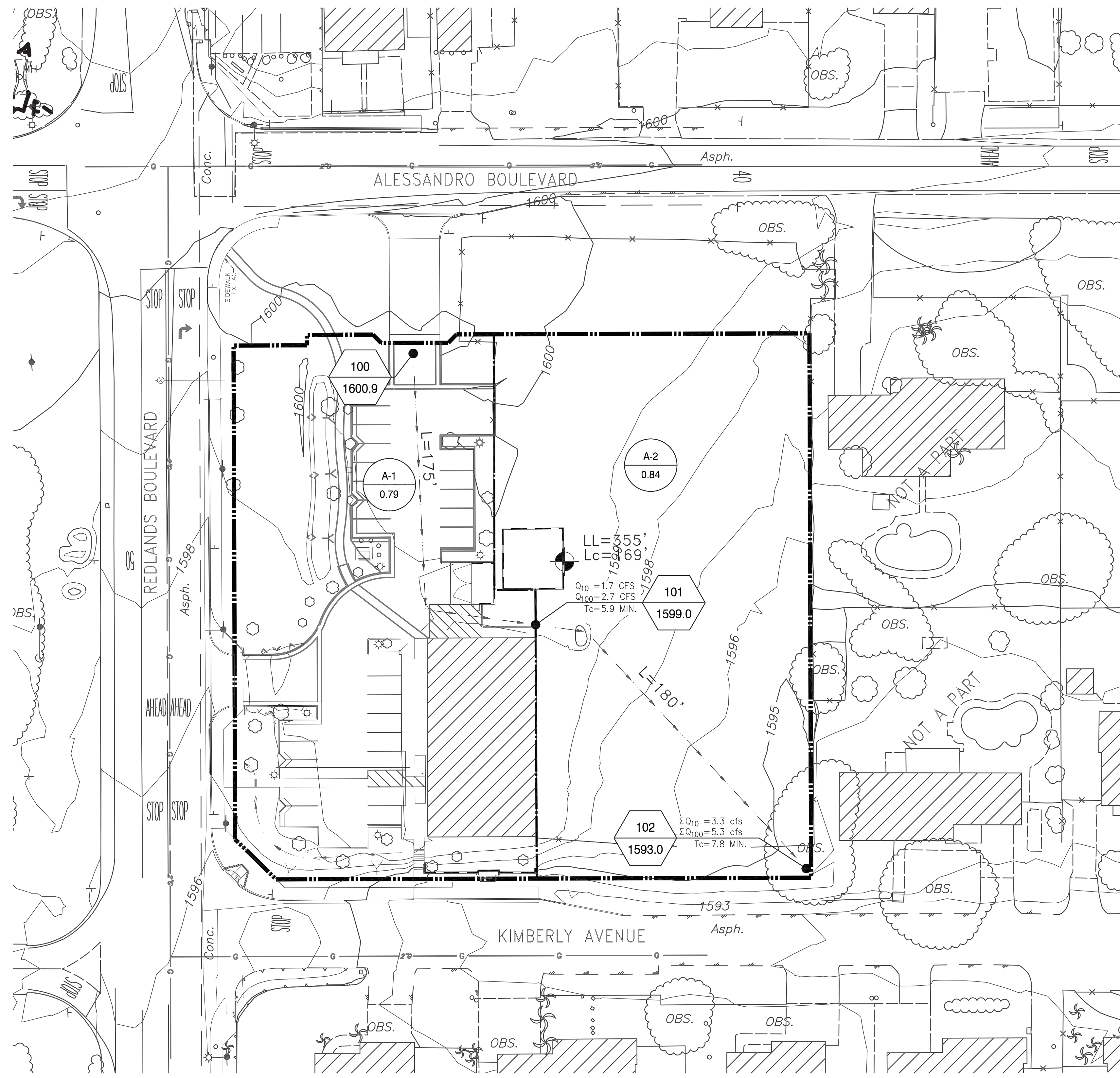
TEST PERIOD																
TRIAL NO.	INNER			ANNULAR SPACE			WATER USED (lbs.)		WATER USED (gal)		INFILTRATION RATE (gal/sf.day)		INFILTRATION RATE (in/hr)		LIQUID TEMP (°F)	REMARKS
	TIME	TIME INTERVAL (minutes)	TOTAL ELAPSED TIME (minutes)	TIME	TIME INTERVAL (minutes)	TOTAL ELAPSED TIME (minutes)	inner	annular space	inner	annular space	inner	annular space	inner	annular space		
1	S	8:58	30	8:58	30	30	9.18	28.71	1.102	3.447	67.4	70.1	4.5	4.7	65	
	E	9:28														
2	S	9:30	30	9:30	30	60	4.62	16.55	0.555	1.987	33.9	40.4	2.3	2.7	66	
	E	10:00														
3	S	10:00	30	10:00	30	90	4.36	14.34	0.523	1.721	32.0	35.0	2.1	2.3	67	refilled outer
	E	10:30														
4	S	10:34	30	10:34	30	120	3.92	10.61	0.471	1.274	28.8	25.9	1.9	1.7	68	
	E	11:04														
5	S	11:04	30	11:04	30	150	3.94	9.51	0.473	1.142	28.9	23.2	1.9	1.6	69	refilled outer
	E	11:34														
6	S	11:34	30	11:34	30	180	3.55	9.36	0.426	1.124	26.1	22.9	1.7	1.5	71	
	E	12:04														
7	S	12:08	30	12:08	30	210	2.77	10.62	0.333	1.275	20.3	25.9	1.4	1.7	73	refilled outer
	E	12:38														
8	S	12:38	30	12:38	30	240	2.92	9.15	0.351	1.098	21.4	22.3	1.4	1.5	75	
	E	13:08														
9	S	13:08	30	13:08	30	270	2.90	10.73	0.348	1.288	21.3	26.2	1.4	1.8	76	
	E	13:38														
10	S	13:38	30	13:38	30	300	3.08	9.55	0.370	1.146	22.6	23.3	1.5	1.6	77	
	E	14:08														
11	S	14:10	30	14:10	30	330	3.01	10.14	0.361	1.217	22.1	24.8	1.5	1.7	78	refilled outer
	E	14:40														
12	S	14:40	30	14:40	30	360	3.02	10.22	0.363	1.227	22.2	25.0	1.5	1.7	79	
	E	15:10														

Enclosure D-2

SECTION 5 - Hydrology Maps

- Existing Hydrology Map
- Proposed Hydrology Map

EXISTING CONDITION HYDROLOGY MAP FARM MARKET EXPANSION AND GAS STATION



LEGEND

- MAJOR DRAINAGE BOUNDARY
- - - MINOR DRAINAGE BOUNDARY
- TRACT BOUNDARY
- - - B / C SOILS GROUP BOUNDARY
- C SOILS GROUP
- 10 NODE NUMBER
- 1150.0 NODE ELEVATION
- A-1 AREA DESIGNATION
- 0.9 AREA ACREAGE (IN ACRES)
- $Q_{10} = x$ cfs 10 YEAR STORM FLOW
- $Q_{100} = x$ cfs 100 YEAR STORM FLOW
- $T = 15.0$ min. TIME OF CONCENTRATION (Q100)
- $?Q_{10} = x$ cfs 10 YEAR STORM FLOW CONFLUENCE
- $?Q_{100} = x$ cfs 100 YEAR STORM FLOW CONFLUENCE
- $T = 15.0$ min. TIME OF CONCENTRATION (Q100)
- AREA "A" AREA DESIGNATION
- LL - LONGEST LENGTH OF FLOW
- LC - LENGTH TO CENTROID
- ⊙ - CENTROID

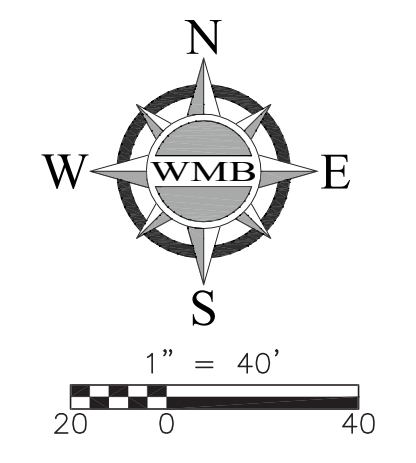
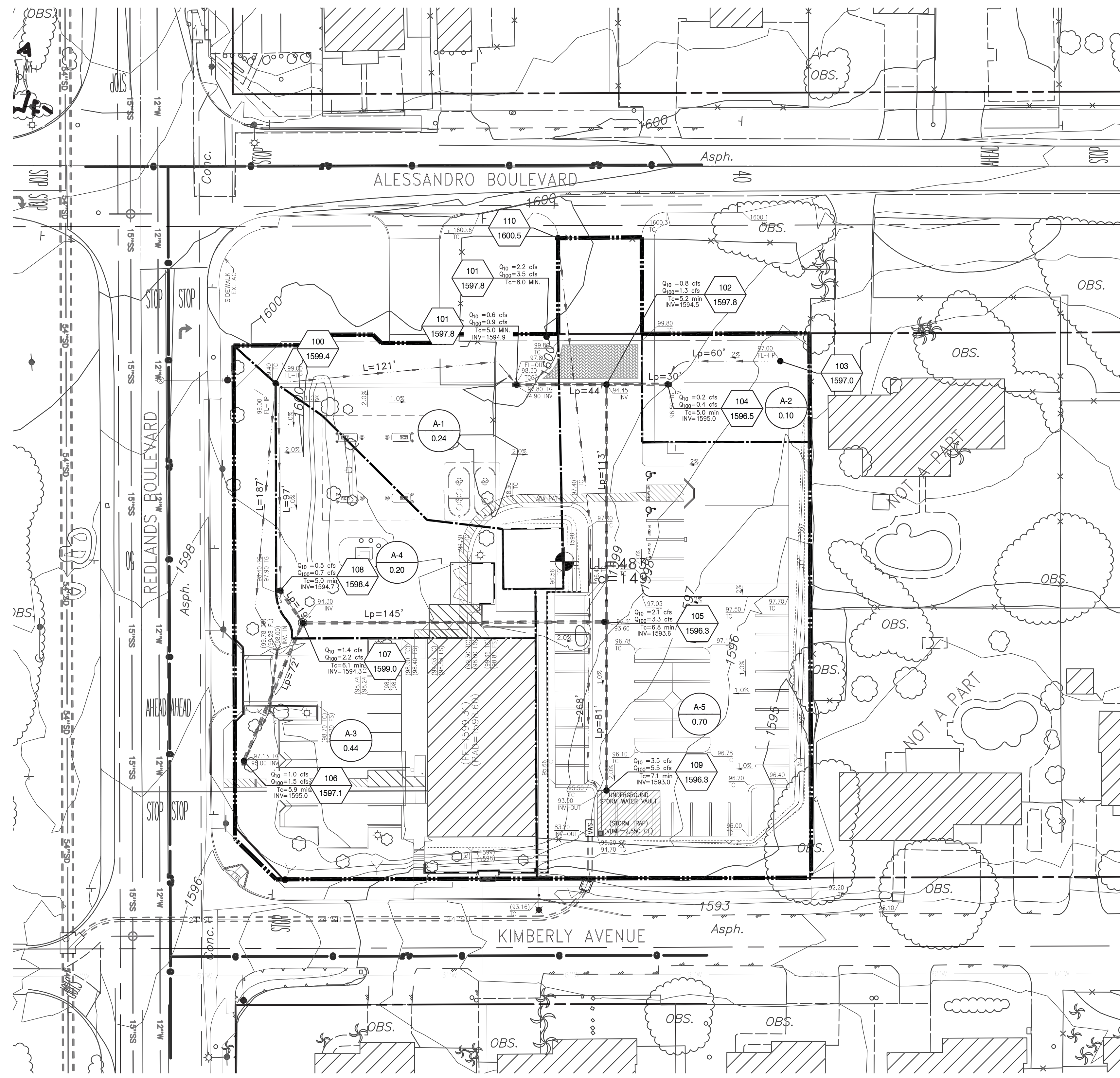
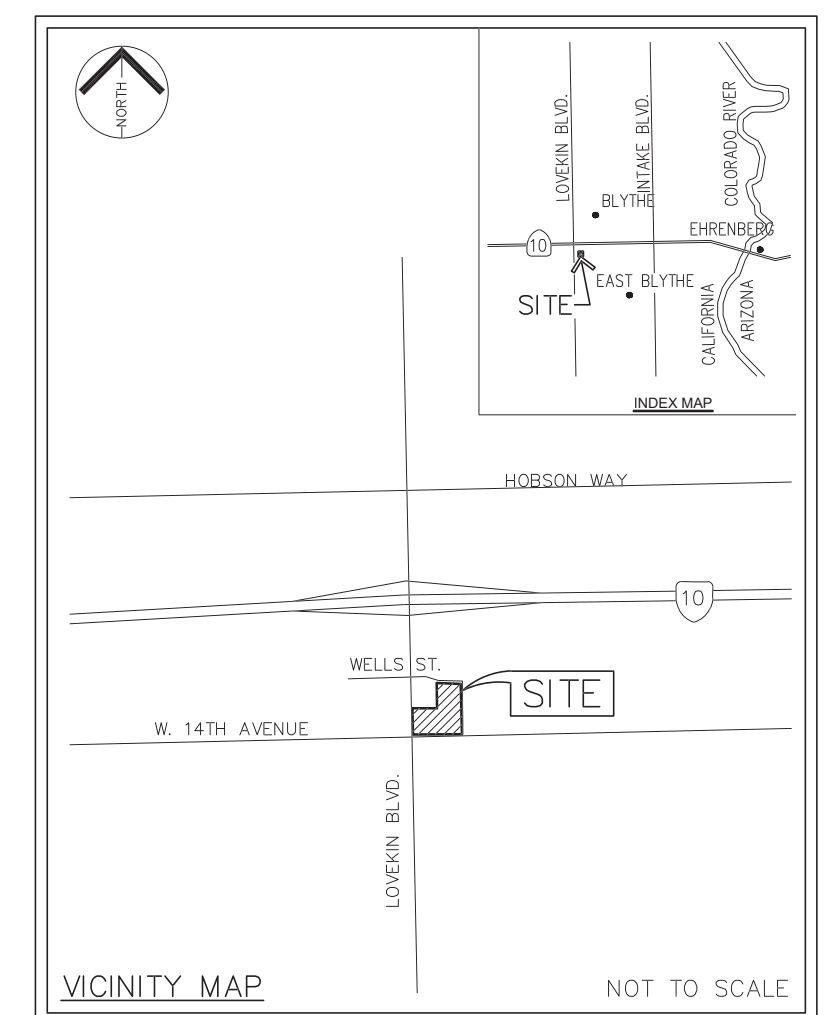
**10458 REDLANDS BOULEVARD
FARM MARKET EXPANSION AND GAS STATION
EXISTING CONDITION HYDROLOGY MAP
CITY OF MORENO VALLEY**

SCALE: 1" = 40'
DATE: 7/23/2020
DESIGNED: BRL
CHECKED: MWB
PLN CK REF:
F.B.

WMB & ASSOCIATES
SURVEYING ENGINEERING PLANNING
22421 BARTON ROAD #125
GRAND TERRACE, CA 92313 (951)533-1871
SURVEYING/ENGINEERING/PLANNING

W.O. 1103
SHEET 1
OF 2 SHEETS
DWG. NO.

PROPOSED CONDITION HYDROLOGY MAP FARM MARKET EXPANSION AND GAS STATION



LEGEND

- MAJOR DRAINAGE BOUNDARY
- - - MINOR DRAINAGE BOUNDARY
- TRACT BOUNDARY
- - - B SOILS GROUP BOUNDARY
- - - C SOILS GROUP
- 10 NODE NUMBER
- 1150.0 NODE ELEVATION
- A-1 AREA DESIGNATION
- 0.9 AREA ACREAGE (IN ACRES)
- Q₁₀ = x cfs 10 YEAR STORM FLOW
- Q₁₀₀ = x cfs 100 YEAR STORM FLOW
- T = 15.0 min. TIME OF CONCENTRATION (Q₁₀₀)
- ?Q₁₀ = x cfs 10 YEAR STORM FLOW CONFLUENCE
- ?Q₁₀₀ = x cfs 100 YEAR STORM FLOW CONFLUENCE
- T = 15.0 min. TIME OF CONCENTRATION (Q₁₀₀)
- AREA "A" AREA DESIGNATION
- LL - LONGEST LENGTH OF FLOW
- LC - LENGTH TO CENTROID
- ⊙ - CENTROID

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FARM MARKET EXPANSION AND GAS STATION
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W.O. 1103
SHEET 2
OF 2 SHEETS
DWG. NO.

Appendix G - Noise Impact Study

Farm Market Improvement Development Noise Impact Study

City of Moreno Valley, CA

Prepared for:

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Noise Study Reports | Vibration Studies | Air Quality | Greenhouse Gas | Health Risk Assessments

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Packet Pg. 1953

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1.0 Introduction

1.1 Purpose of Analysis and Study Objectives

This purpose of this noise impact study is to evaluate the potential noise impacts for the project study area and compare results to City and CEQA thresholds. The assessment was conducted and compared to the noise standards set forth by the Federal, State and Local agencies. Consistent with the California Environmental Quality Act (CEQA) and CEQA Guidelines, a significant impact related to noise would occur if a proposed project is determined to result in:

- Exposure of persons to or generation of noise levels in excess of standards established in the local General Plan or noise ordinance, or applicable agencies.
- Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels.
- A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.
- A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

The following is provided in this report:

- A description of the study area and the proposed project
- Information regarding the fundamentals of noise
- A description of the local noise guidelines and standards
- An evaluation of the existing ambient noise environment
- An analysis of stationary noise impacts from the project site to adjacent land uses
- Construction noise and vibration evaluation

1.2 Site Location and Study Area

The project site is located at the southeast corner of Redlands Boulevard and Alessandro Boulevard, in the City of Moreno Valley, CA as shown in Exhibit A. The land uses directly surrounding the project includes residential to the North, South and East, with commercial use to the west.

1.3 Proposed Project Description

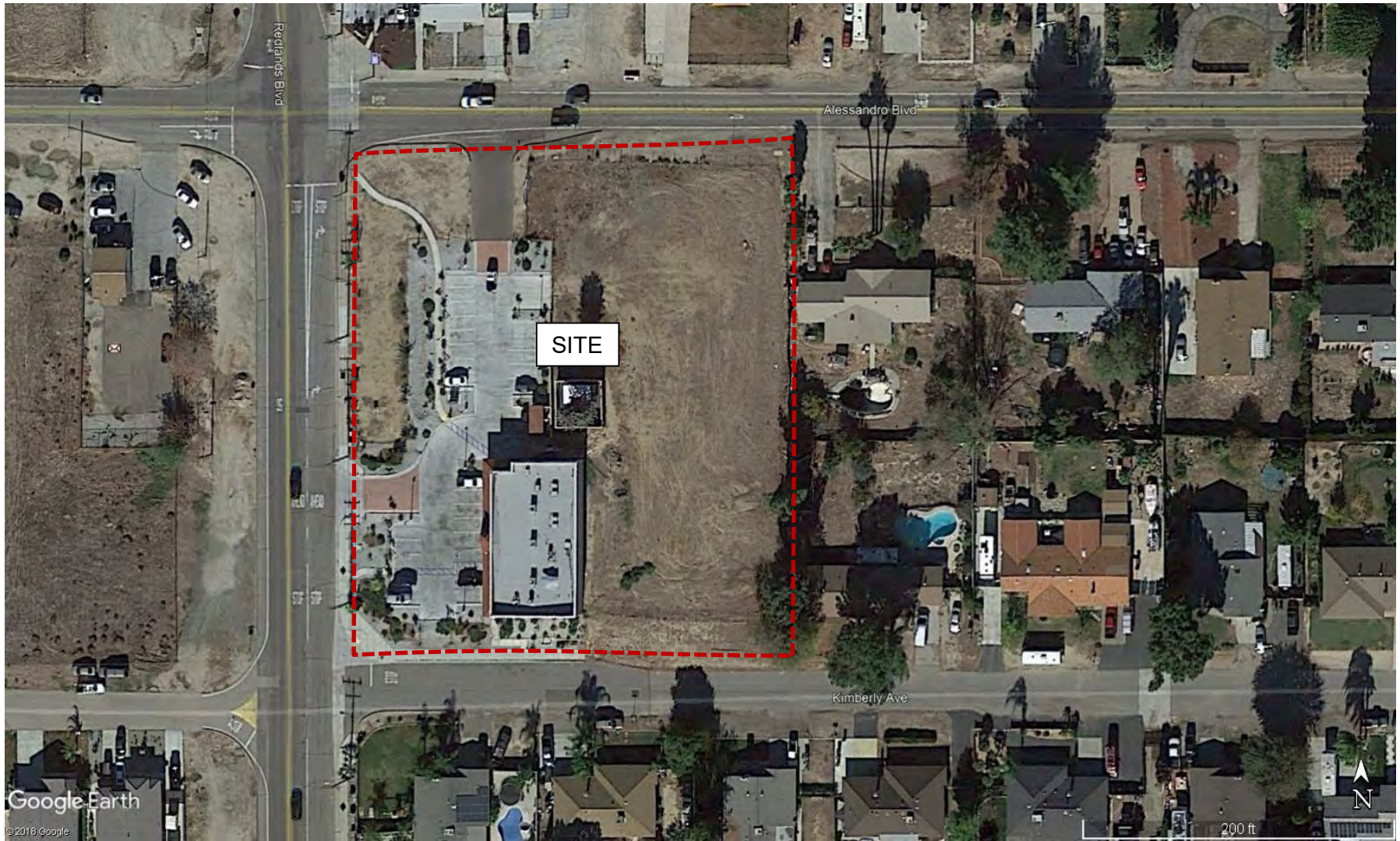
The proposed project currently has an existing Farm Market store and cell tower and proposes to add the following:

- 2,00 square feet of commercial building;
- 2,500 square feet of restaurant;
- Gas station with 8 vehicle fueling station;

The proposed project is located at the southeast corner of the intersection of Redlands Boulevard and Alessandro Boulevard. The site is currently zoned Village Commercial (VC) and classified as Commercial

Land Use according to the City of Moreno Valley General Plan Land Use Map. The proposed project land use is permitted in the zone and does not require a zone change. The site plan used for this is illustrated in Exhibit B.

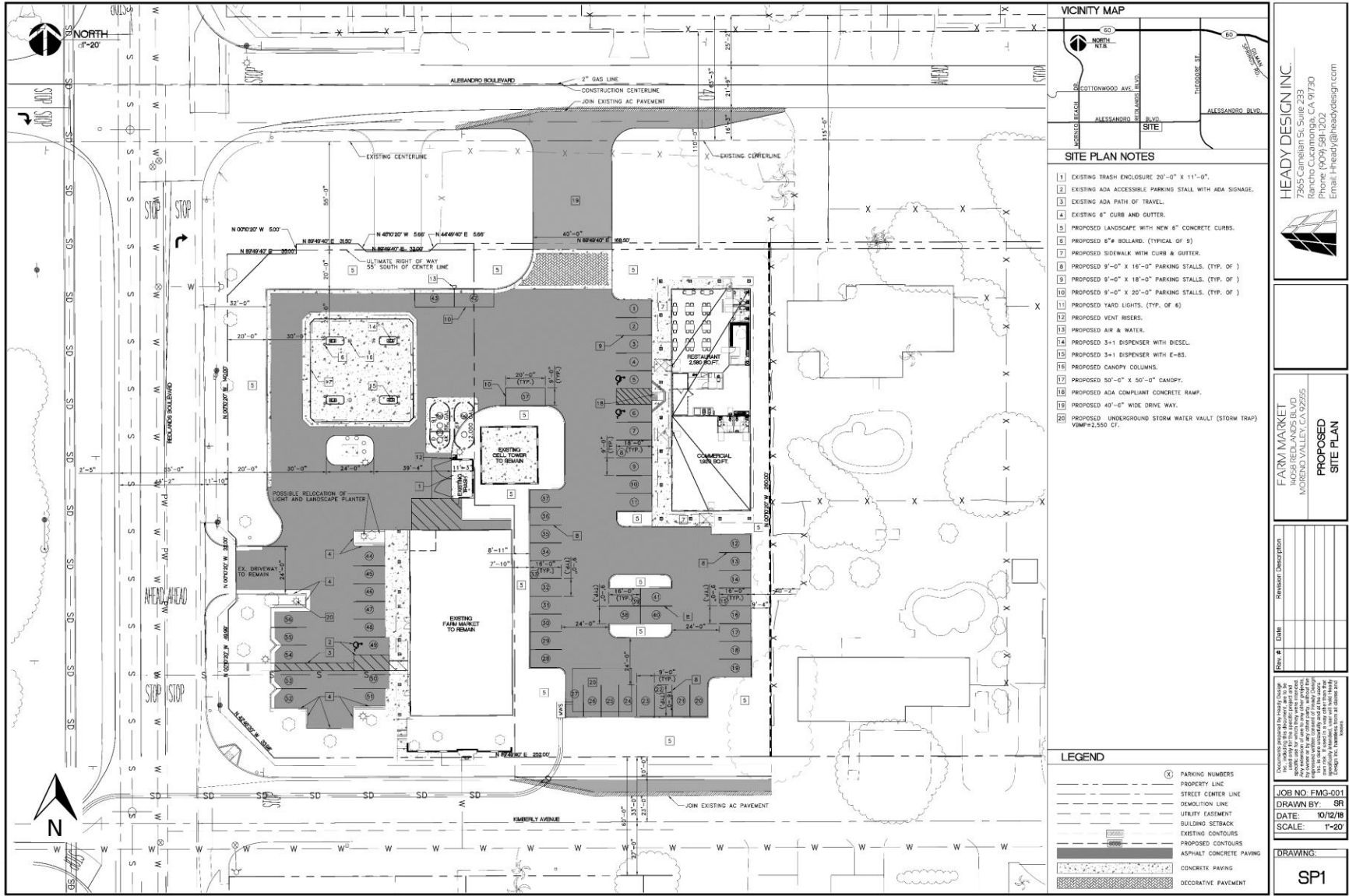
Exhibit /
Location Map



Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Exhibit I
 Site Plan

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)



2.0 Fundamentals of Noise

This section of the report provides basic information about noise and presents some of the terms used in the report.

2.1 Sound, Noise and Acoustics

Sound is a disturbance created by a moving or vibrating source and is capable of being detected by the hearing organs. Sound may be thought of as mechanical energy of a moving object transmitted by pressure waves through a medium to a human ear. For traffic or stationary noise, the medium of concern is air. *Noise* is defined as sound that is loud, unpleasant, unexpected, or unwanted.

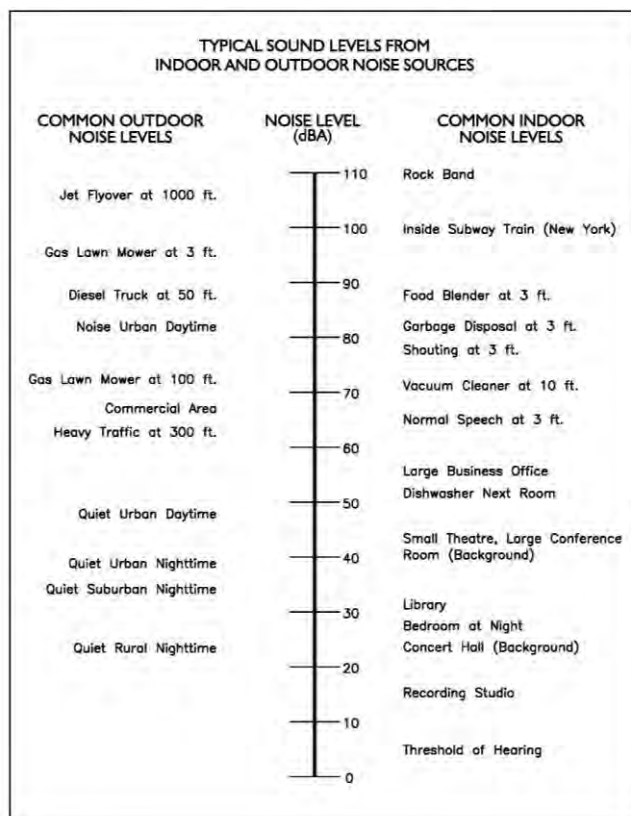
2.2 Frequency and Hertz

A continuous sound is described by its *frequency* (pitch) and its *amplitude* (loudness). Frequency relates to the number of pressure oscillations per second. Low-frequency sounds are low in pitch (bass sounding) and high-frequency sounds are high in pitch (squeak). These oscillations per second (cycles) are commonly referred to as Hertz (Hz). The human ear can hear from the bass pitch starting out at 20 Hz all the way to the high pitch of 20,000 Hz.

2.3 Sound Pressure Levels and Decibels

The *amplitude* of a sound determines its loudness. The loudness of sound increases or decreases as the amplitude increases or decreases. Sound pressure amplitude is measured in units of micro-Newton per square inch meter ($\mu\text{N}/\text{m}^2$), also called micro-Pascal (μPa). One μPa is approximately one hundred billionths (0.0000000001) of normal atmospheric pressure. Sound pressure level (SPL or L_p) is used to describe in logarithmic units the ratio of actual sound pressures to a reference pressure squared. These units are called decibels, abbreviated dB. Exhibit C illustrates references sound levels for different noise sources.

Exhibit C: Typical A-Weighted Noise Levels



2.4 Addition of Decibels

Because decibels are on a logarithmic scale, sound pressure levels cannot be added or subtracted by simple plus or minus addition. When two sounds or equal SPL are combined, they will produce an SPL 3 dB greater than the original single SPL. In other words, sound energy must be doubled to produce a 3 dB increase. If two sounds differ by approximately 10 dB, the higher sound level is the predominant sound.

2.5 Human Response to Changes in Noise Levels

In general, the healthy human ear is most sensitive to sounds between 1,000 Hz and 5,000 Hz, and it perceives a sound within that range as being more intense than a sound with a higher or lower frequency with the same magnitude. For purposes of this report as well as with most environmental documents, the A-scale weighting is typically reported in terms of A-weighted decibel (dBA), a scale designed to account for the frequency-dependent sensitivity of the ear. Typically, the human ear can barely perceive a change in noise level of 3 dB. A change in 5 dB is readily perceptible, and a change in 10 dB is perceived as being twice or half as loud. As previously discussed, a doubling of sound energy results in a 3 dB increase in sound, which means that a doubling of sound energy (e.g. doubling the volume of traffic on a highway) would result in a barely perceptible change in sound level.

2.6 Noise Descriptors

Noise in our daily environment fluctuates over time. Some noise levels occur in regular patterns, others are random. Some noise levels are constant while others are sporadic. Noise descriptors were created to describe the different time-varying noise levels.

A-Weighted Sound Level: The sound pressure level in decibels as measured on a sound level meter using the A-weighted filter network. The A-weighting filter de-emphasizes the very low and very high-frequency components of the sound in a manner similar to the response of the human ear. A numerical method of rating human judgment of loudness.

Ambient Noise Level: The composite of noise from all sources, near and far. In this context, the ambient noise level constitutes the normal or existing level of environmental noise at a given location.

Community Noise Equivalent Level (CNEL): The average equivalent A-weighted sound level during a 24-hour day, obtained after addition of five (5) decibels to sound levels in the evening from 7:00 to 10:00 PM and after addition of ten (10) decibels to sound levels in the night before 7:00 AM and after 10:00 PM.

Decibel (dB): A unit for measuring the amplitude of a sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micro-pascals.

dB(A): A-weighted sound level (see definition above).

Equivalent Sound Level (LEQ): The sound level corresponding to a steady noise level over a given sample period with the same amount of acoustic energy as the actual time-varying noise level. The energy average noise level during the sample period.

Habitable Room: Any room meeting the requirements of the Uniform Building Code, or other applicable regulations, which is intended to be used for sleeping, living, cooking or dining purposes, excluding such enclosed spaces as closets, pantries, bath or toilet rooms, service rooms, connecting corridors, laundries, unfinished attics, foyers, storage spaces, cellars, utility rooms and similar spaces.

L(n): The A-weighted sound level exceeded during a certain percentage of the sample time. For example, L10 in the sound level exceeded 10 percent of the sample time. Similarly L50, L90, and L99, etc.

Noise: Any unwanted sound or sound which is undesirable because it interferes with speech and hearing, or is intense enough to damage hearing, or is otherwise annoying. The State Noise Control Act defines noise as "...excessive undesirable sound...".

Outdoor Living Area: Outdoor spaces that are associated with residential land uses typically used for passive recreational activities or other noise-sensitive uses. Such spaces include patio areas, barbecue areas, jacuzzi areas, etc. associated with residential uses; outdoor patient recovery or resting areas associated with hospitals, convalescent hospitals, or rest homes; outdoor areas associated with places of worship which have a significant role in services or other noise-sensitive activities; and outdoor school facilities routinely used for educational purposes which may be adversely impacted by noise. Outdoor areas usually not included in this definition are: front yard areas, driveways, greenbelts, maintenance areas and storage areas associated with residential land uses; exterior areas at hospitals that are not used for patient activities; outdoor areas associated with places of worship and principally used for short-term social gatherings; and, outdoor areas associated with school facilities that are not typically associated with educational uses prone to adverse noise impacts (for example, school play yard areas).

Percent Noise Levels: See L(n).

Sound Level (Noise Level): The weighted sound pressure level obtained by use of a sound level meter having a standard frequency filter for attenuating part of the sound spectrum.

Sound Level Meter: An instrument, including a microphone, an amplifier, an output meter, and frequency weighting networks for the measurement and determination of noise and sound levels.

Single Event Noise Exposure Level (SENEL): The dB(A) level which, if it lasted for one second, would produce the same A-weighted sound energy as the actual event.

2.7 Traffic Noise Prediction

Noise levels associated with traffic depends on a variety of factors: (1) volume of traffic, (2) speed of traffic, (3) auto, medium truck (2–3 axle) and heavy truck percentage (4 axle and greater), and sound propagation. The greater the volume of traffic, higher speeds and truck percentages equate to a louder volume in noise. A doubling of the Average Daily Traffic (ADT) along a roadway will increase noise levels by approximately 3 dB; reasons for this are discussed in the sections above.

2.8 Sound Propagation

As sound propagates from a source it spreads geometrically. Sound from a small, localized source (i.e., a point source) radiates uniformly outward as it travels away from the source in a spherical pattern. The sound level attenuates at a rate of 6 dB per doubling of distance. The movement of vehicles down a roadway makes the source of the sound appear to propagate from a line (i.e., line source) rather than a point source. This line source results in the noise propagating from a roadway in a cylindrical spreading versus a spherical spreading that results from a point source. The sound level attenuates for a line source at a rate of 3 dB per doubling of distance.

As noise propagates from the source, it is affected by the ground and atmosphere. Noise models use hard site (reflective surfaces) and soft site (absorptive surfaces) to help calculate predicted noise levels. Hard site conditions assume no excessive ground absorption between the noise source and the

receiver. Soft site conditions such as grass, soft dirt or landscaping attenuate noise at a rate of 1.5 dB per doubling of distance. When added to the geometric spreading, the excess ground attenuation results in an overall noise attenuation of 4.5 dB per doubling of distance for a line source and 7.5 dB per doubling of distance for a point source.

Research has demonstrated that atmospheric conditions can have a significant effect on noise levels when noise receivers are located 200 feet from a noise source. Wind, temperature, air humidity, and turbulence can further impact how far sound can travel.

3.0 Ground-Borne Vibration Fundamentals

3.1 Vibration Descriptors

Ground-borne vibrations consist of rapidly fluctuating motions within the ground that have an average motion of zero. The effects of ground-borne vibrations typically only cause a nuisance to people, but at extreme vibration levels, damage to buildings may occur. Although ground-borne vibration can be felt outdoors, it is typically only an annoyance to people indoors where the associated effects of the shaking of a building can be notable. Ground-borne noise is an effect of ground-borne vibration and only exists indoors since it is produced from noise radiated from the motion of the walls and floors of a room and may also consist of the rattling of windows or dishes on shelves.

Several different methods are used to quantify vibration amplitude.

PPV – Known as the peak particle velocity (PPV) which is the maximum instantaneous peak in vibration velocity, typically given in inches per second.

RMS – Known as root mean squared (RMS) can be used to denote vibration amplitude

VdB – A commonly used abbreviation to describe the vibration level (VdB) for a vibration source.

3.2 Vibration Perception

Typically, developed areas are continuously affected by vibration velocities of 50 VdB or lower. These continuous vibrations are not noticeable to humans whose threshold of perception is around 65 VdB. Outdoor sources that may produce perceptible vibrations are usually caused by construction equipment, steel-wheeled trains, and traffic on rough roads, while smooth roads rarely produce perceptible ground-borne noise or vibration. To counter the effects of ground-borne vibration, the Federal Transit Administration (FTA) has published guidance relative to vibration impacts. According to the FTA, fragile buildings can be exposed to ground-borne vibration levels of 0.3 inches per second without experiencing structural damage.

3.3 Vibration Propagation

There are three main types of vibration propagation: surface, compression, and shear waves. Surface waves, or Rayleigh waves, travel along the ground's surface. These waves carry most of their energy along an expanding circular wavefront, similar to ripples produced by throwing a rock into a pool of water. P-waves, or compression waves, are body waves that carry their energy along an expanding spherical wavefront. The particle motion in these waves is longitudinal (i.e., in a "push-pull" fashion). P-waves are analogous to airborne sound waves. S-waves, or shear waves, are also body waves that carry energy along an expanding spherical wavefront. However, unlike P-waves, the particle motion is transverse, or side-to-side and perpendicular to the direction of propagation.

As vibration waves propagate from a source, the vibration energy decreases in a logarithmic nature and the vibration levels typically decrease by 6 VdB per doubling of the distance from the vibration source. As stated above, this drop-off rate can vary greatly depending on the soil but has been shown to be effective enough for screening purposes, in order to identify potential vibration impacts that may need to be studied through actual field tests.

4.0 Regulatory Setting

The proposed project is located in the City of Moreno Valley, California and noise regulations are addressed through the efforts of various federal, state and local government agencies. The agencies responsible for regulating noise are discussed below.

4.1 Federal Regulations

The adverse impact of noise was officially recognized by the federal government in the Noise Control Act of 1972, which serves three purposes:

- Publicize noise emission standards for interstate commerce
- Assist state and local abatement efforts
- Promote noise education and research

The Federal Office of Noise Abatement and Control (ONAC) originally was tasked with implementing the Noise Control Act. However, it was eventually eliminated leaving other federal agencies and committees to develop noise policies and programs. Some examples of these agencies are as follows: The Department of Transportation (DOT) assumed a significant role in noise control through its various agencies. The Federal Aviation Agency (FAA) is responsible for regulating noise from aircraft and airports. The Federal Highway Administration (FHWA) is responsible for regulating noise from the interstate highway system. The Occupational Safety and Health Administration (OSHA) is responsible for the prohibition of excessive noise exposure to workers. The Housing and Urban Development (HUD) is responsible for establishing noise regulations as it relates to exterior/interior noise levels for new HUD-assisted housing developments near high noise areas.

The federal government advocates that local jurisdictions use their land use regulatory authority to arrange new development in such a way that “noise sensitive” uses are either prohibited from being constructed adjacent to a highway or, or alternatively that the developments are planned and constructed in such a manner that potential noise impacts are minimized.

Since the federal government has preempted the setting of standards for noise levels that can be emitted by the transportation source, the City is restricted to regulating the noise generated by the transportation system through nuisance abatement ordinances and land use planning.

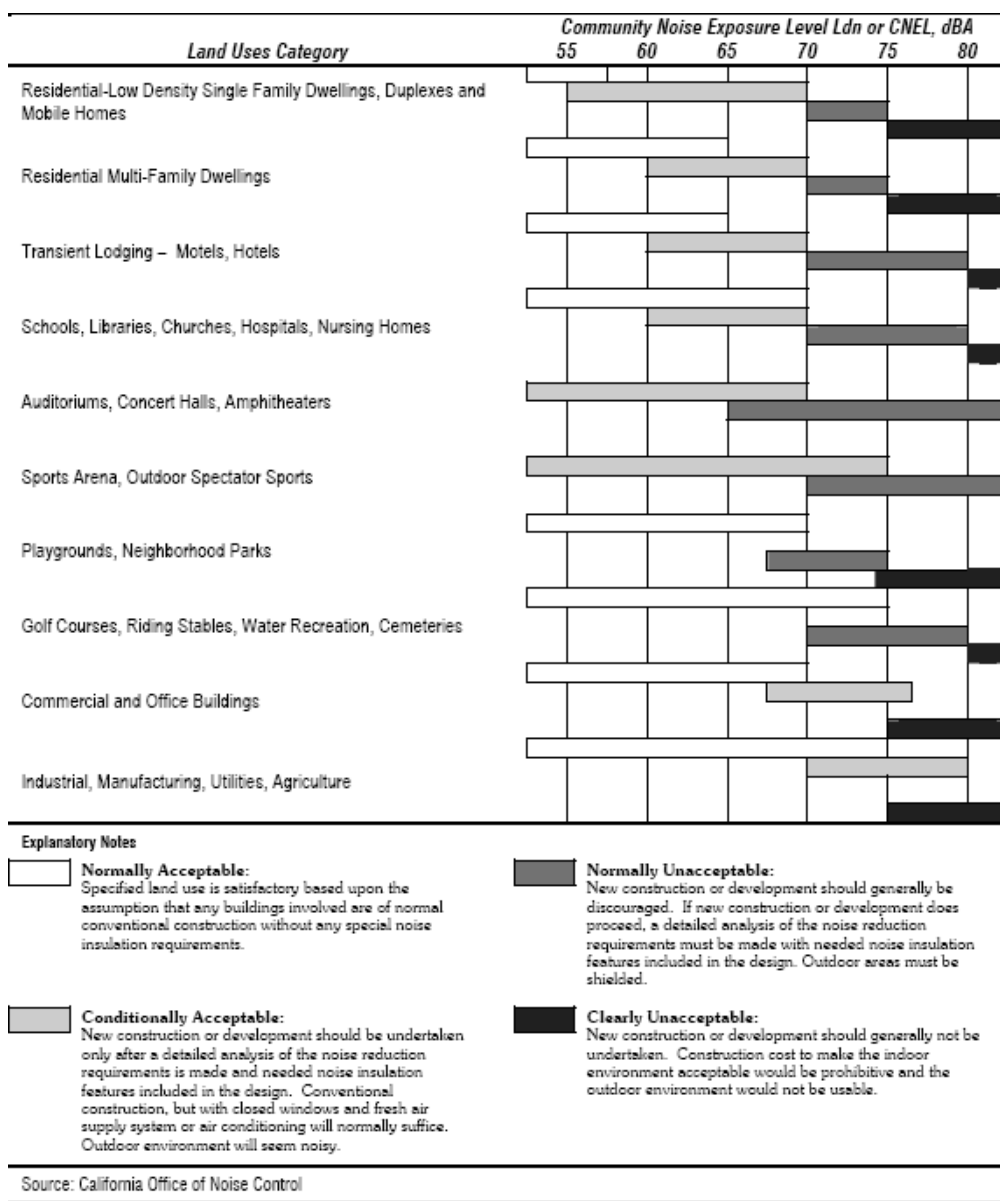
4.2 State Regulations

Established in 1973, the California Department of Health Services Office of Noise Control (ONC) was instrumental in developing regularity tools to control and abate noise for use by local agencies. One significant model is the “Land Use Compatibility for Community Noise Environments Matrix.” The matrix allows the local jurisdiction to clearly delineate compatibility of sensitive uses with various incremental levels of noise.

The State of California has established noise insulation standards as outlined in Title 24 and the Uniform Building Code (UBC) which in some cases requires acoustical analyses to outline exterior noise levels and to ensure interior noise levels do not exceed the interior threshold. The State mandates that the legislative body of each county and city adopt a noise element as part of its comprehensive general

plan. The local noise element must recognize the land use compatibility guidelines published by the State Department of Health Services. The guidelines rank noise land use compatibility in terms of normally acceptable, conditionally acceptable, normally unacceptable, and clearly unacceptable as illustrated in Exhibit D.

Exhibit D: Land Use Compatibility Guidelines



Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

4.3 City of Moreno Valley Noise Regulations

The City of Moreno Valley outlines their noise regulations and standards within the Municipal Code and the City of Moreno Valley General Plan.

City of Moreno General Plan

Implementation of any of the three General Plan Alternatives may result in excessive noise generated by non-residential projects such as industrial and commercial uses, restaurants, and bars. These types of uses are allowed throughout the planning era. This is considered a potentially significant impact because stationary noise sources may subject some residents and noise sensitive land uses to substantial increases in ambient noise levels and ground bourn vibration that exceed established standards. Noise generated by new development is controlled through the normal design review process and General Plan Policy 6.5.1. When reviewing proposed non-residential projects, noise impacts to surrounding development will be considered. Acoustical analyses will be required for projects that could generate noise potentially affecting residential and other sensitive uses. Where impacts are identified, mitigation measures will be required. Implementation of Mitigation Measures N4, N7, and N9 will reduce this impact to a level less than significant.

Goals, Policies, and Implementation Measures

Policies, goals and implementation program measures from the General Plan that would mitigate potential impacts on noise include the following.

- N1.** The following noise control measures shall be applied to new single-family dwellings exposed to noise along major roadways:
- a. Install sound barriers (masonry walls or walls with earth berms) between residences and noise sources.
 - b. Install double-paned or similar sound rated windows.
 - c. Provide sound insulating exterior walls and roofing systems.
 - d. Locate and/or design attic vents to minimize sound propagation into each home.
 - e. Provide forced-air ventilation systems.
 - f. Place dwellings as far as practical from the noise source. Install sound barriers (masonry walls or walls with earth berms) between residences and noise sources.
- N2.** Acoustical analyses shall be conducted for new residential development along State Route 60. Noise control measures shall be required to reduce the amount of noise to acceptable levels (limit interior noise levels with doors and windows closed to 45 CNEL)..
- N3.** Discourage residential uses where current or projected exterior noise due to aircraft over flights will exceed 65 CNEL (Policy 6.3.2)..
- N4.** New commercial and industrial activities (including the placement of mechanical equipment) shall be evaluated and designed to mitigate noise impacts on adjacent uses (Policy 6.5.1).
- N5.** Construction activities shall be operated in a manner that limits noise impacts on surrounding uses (Policy 6.5.2).

N6. The City shall reevaluate designated truck routes in terms of noise impact on existing land uses to determine if those established routes and the hours of their use should be adjusted to minimize exposure to truck noise (Program 6-3).

N7. The following uses shall require mitigation to reduce noise exposure where current or future exterior noise levels exceed 20 CNEL above the desired interior noise level (Policy 6.3.1):

- a. New single-family and multiple-family residential buildings shall be insulated to achieve an interior noise level of 45 CNEL or less. Such buildings shall include sound-insulating windows, walls, roofs and ventilation systems. Sound barriers shall also be installed (e.g. masonry walls or walls with berms) between single-family residences and major roadways.
- b. New libraries, hospitals and extended medical care facilities, places of worship and office uses shall be insulated to achieve interior noise levels of 50 CNEL or less.
- c. New schools shall be insulated to achieve interior noise levels of 45 CNEL or less.

N8. Where the future noise environment is likely to exceed 70 CNEL due to overflights from the joint-use airport at March, new buildings containing uses that are not addressed under Policy 6.3.1 shall require insulation to achieve interior noise levels recommended in the March Air Reserve Base Air Installation Compatible Use Zone Report (Policy 6.3.3).

N9. The City shall enforce the California Administrative Code, Title 24 noise insulation standards for new multi-family housing developments, motels and hotels (Policy 6.3.5).

N10. Building construction shall be prohibited between 8 p.m. and 6 a.m. during the week and 8 p.m. and 7 a.m. weekends and holidays (Policy 6.3.6).

City of Moreno Valley – Noise Ordinance

Section 11.80.030 from the noise ordinance outlines the City's exterior noise limits as it relates to stationary noise sources.

No person shall maintain, create, operate or cause to be operated on private property any source of sound in such a manner as to create any non-impulsive sound which exceeds the limits set forth for the source land use category (as defined in 11.80.020) in Table 1 when measured at a distance of two hundred (200) feet or more from the real property line of the source of the sound, if the sound occurs on privately owned property, or from the source of the sound, if the sound occurs on public right of way, public space or other publicly owned property. Any source of sound in violation of this subsection shall be deemed prima facie to be a noise disturbance.

Table 1: Allowable Exterior Noise Level¹
Sound Level Standards (dBA Leq)*

General Plan Land Use Designation	Maximum Decibel Level	
	7 a.m. - 10 p.m.	10 p.m. - 7 a.m.
Residential	60	55
Commercial	65	60

• **Sec. 11.80.030. – Specific Prohibitions.**

1. Motor Vehicles. No person shall operate or cause to be operated a public or private motor vehicle, or combination of vehicles towed by a motor vehicle, that creates a sound exceeding the sound level limits in Table 11.80.030-2 when the vehicle(s) are not otherwise subject to noise regulations provided for by the California Vehicle Code.
2. Radios, Televisions, Electronic Audio Equipment, Musical Instruments or Similar Devices from a Stationary Source. No person shall operate, play or permit the operation or playing of any radio, tape player, television, electronic audio equipment, musical instrument, sound amplifier or other mechanical or electronic sound making device that produces, reproduces or amplifies sound in such a manner as to create a noise disturbance. However, this subsection shall not apply to any use or activity exempted in subsection E of this section and any use or activity for which a special permit has been issued pursuant to Section 11.80.040.
3. Radios, Electronic Audio Equipment, or Similar Devices from a Mobile Source Such as a Motor Vehicle. Sound amplification or reproduction equipment on or in a motor vehicle is subject to regulation in accordance with the California Vehicle Code when upon the public right-of-way. When upon public space or publicly owned property other than the public right-of-way or upon private property open to the public, sound amplification or reproduction equipment shall not be operated in such a manner that it is plainly audible at a distance of fifty (50) feet in any direction from the vehicle.
4. Portable, Hand-Held Music or Sound Amplification or Reproduction Equipment. Such equipment shall not be operated on a public right-of-way, public space or other publicly owned property in such a manner as to be plainly audible at a distance of fifty (50) feet in any direction from the operator.
5. Loudspeakers and Public Address Systems.
 - a. Except as permitted by Section 11.80.040, no person shall operate, or permit the operation of, any loudspeaker, public address system or similar device, for any commercial purpose:

1. Which produces, reproduces or amplifies sound in such a manner as to create a noise disturbance; or
2. During nighttime hours on a public right-of-way, public space or other publicly owned property.
 - b. No person shall operate, or permit the operation of, any loudspeaker, public address system or similar device, for any noncommercial purpose, during nighttime hours in such a manner as to create a noise disturbance.
6. Animals. No person shall own, possess or harbor an animal or bird that howls, barks, meows, squawks, or makes other sounds that:
 - a. Create a noise disturbance;
 - b. Are of frequent or continued duration for ten (10) or more consecutive minutes and are plainly audible at a distance of fifty (50) feet from the real property line of the source of the sound; or
 - c. Are intermittent for a period of thirty (30) or more minutes and are plainly audible at a distance of fifty (50) feet from the real property line of the source of the sound.
7. Construction and Demolition. No person shall operate or cause the operation of any tools or equipment used in construction, drilling, repair, alteration or demolition work between the hours of eight p.m. and seven a.m. the following day such that the sound there from creates a noise disturbance, except for emergency work by public service utilities or for other work approved by the city manager or designee. This section shall not apply to the use of power tools as provided in subsection (D)(9) of this section.
8. Emergency Signaling Devices. No person shall intentionally sound or permit the sounding outdoors of any fire, burglar or civil defense alarm, siren or whistle, or similar stationary emergency signaling device, except for emergency purposes or for testing as follows:
 - a. Testing of a stationary emergency signaling device shall not occur between seven p.m. and seven a.m. the following day;
 - b. Testing of a stationary emergency signaling device shall use only the minimum cycle test time, in no case to exceed sixty (60) seconds;
 - c. Testing of a complete emergency signaling system, including the functioning of the signaling device and the personnel response to the signaling device, shall not occur more than once in each calendar month. Such testing shall only occur only on weekdays between seven a.m. and seven p.m. and shall be exempt from the time limit specified in subsection (D)(8)(2) of this section.

9. Power Tools. No person shall operate or permit the operation of any mechanically, electrically or gasoline motor-driven tool during nighttime hours so as to cause a noise disturbance across a residential real property boundary.

10. Pumps, Air Conditioners, Air-Handling Equipment and Other Continuously Operating Equipment. Notwithstanding the general prohibitions of subsection a of this section, no person shall operate or permit the operation of any pump, air conditioning, air-handling or other continuously operating motorized equipment in a state of disrepair or in a manner which otherwise creates a noise disturbance distinguishable from normal operating sounds.

Sec. 11.80.030(2). - Exemptions.

Exemptions. No violation shall exist if the only persons exposed to sound levels in excess of those listed in Tables 11.80.030-1 and 11.80.030-1A are exposed as a result of:

- a. Trespass;
- b. Invitation upon private property by the person causing or permitting the sound; or
- c. Employment by the person or a contractor of the person causing or permitting the sound.

5.0 Study Method and Procedure

The following section describes the noise modeling procedures and assumptions used for this assessment.

5.1 Noise Measurement Procedure and Criteria

Noise measurements are taken to determine the existing noise levels. A noise receiver or receptor is any location in the noise analysis in which noise might produce an impact. The following criteria are used to select measurement locations and receptors:

- Locations expected to receive the highest noise impacts, such as the first row of houses
- Locations that are acoustically representative and equivalent of the area of concern
- Human land usage
- Sites clear of major obstruction and contamination

MD conducted the sound level measurements in accordance to Federal Highway Transportation (FHWA) and Caltrans (TeNS) technical noise specifications. All measurement equipment meets American National Standards Institute (ANSI) specifications for sound level meters (S1.4-1983 identified in Chapter 19.68.020.AA). The following gives a brief description of the Caltrans Technical Noise Supplement procedures for sound level measurements:

- Microphones for sound level meters were placed 5-feet above the ground for all measurements
- Sound level meters were calibrated (Larson Davis CAL 200) before and after each measurement
- Following the calibration of equipment, a windscreen was placed over the microphone
- Frequency weighting was set on "A" and slow response
- Results of the long-term noise measurements were recorded on field data sheets
- During any short-term noise measurements, any noise contaminations such as barking dogs, local traffic, lawn mowers, or aircraft fly-overs were noted
- Temperature and sky conditions were observed and documented

5.2 Noise Measurement Locations

Noise monitoring locations were selected based on the nearest sensitive receptors relative to the proposed onsite noise sources. One (1) long-term 24-hour noise measurement was conducted at or near the project site and are illustrated in Exhibit E. Appendix A includes photos, field sheet, and measured noise data.

5.3 Stationary Noise Modeling

SoundPLAN (SP) acoustical modeling software was utilized to model future worst-case stationary noise impacts to the adjacent land uses. SP is capable of evaluating multiple stationary noise source impacts at various receiver locations. SP's software utilizes algorithms (based on the inverse square law and reference equipment noise level data) to calculate noise level projections. The software allows the user to input specific noise sources, spectral content, sound barriers, building placement, topography, and sensitive receptor locations.

The future worst-case noise level projections were modeled using referenced sound level data for the various stationary on-site sources (parking spaces, and gas station canopy). The model assumes that the gas station canopy has approximately eight (8) filling stations, and approximately 59 parking spaces.

The gas canopy was modeled as an area noise source were reference levels of 70 dBA at 3 feet.

The cars idling and coming and going in the parking spots were modeled at 2.5 cars per hour.

The SP model assumes that all noise sources are operating simultaneously (worst-case scenario), when in actuality the noise will be intermittent and lower in noise level.

Finally, the model is able to evaluate the noise attenuating effects of any existing or proposed property line walls (approximately 6-foot tall existing wood fence on the east property line). Input and output calculations are provided in Appendix B.

5.4 FHWA Traffic Noise Prediction Model

Traffic noise from vehicular traffic was projected using a computer program that replicates the FHWA Traffic Noise Prediction Model (FHWA-RD-77-108). The FHWA model arrives at the predicted noise level through a series of adjustments to the Reference Energy Mean Emission Level (REMEL). Roadway volumes and percentages correspond to the project's traffic impact study as prepared by TJW Engineering (HDI-18-002 Van Buren Blvd Commercial Development Center Traffic Impact Assessment – Sept 2018) and roadway classification. The referenced traffic data was applied to the model and is in Appendix B. The following outlines the key adjustments made to the REMEL for the roadway inputs:

- Roadway classification – (e.g. freeway, major arterial, arterial, secondary, collector, etc),
- Roadway Active Width – (distance between the center of the outer most travel lanes on each side of the roadway)
- Average Daily Traffic Volumes (ADT), Travel Speeds, Percentages of automobiles, medium trucks and heavy trucks
- Roadway grade and angle of view
- Site Conditions (e.g. soft vs. hard)
- Percentage of total ADT which flows each hour through-out a 24-hour period

Table 2 indicates the roadway parameters and vehicle distribution utilized for this study.

Table 2: Roadway Parameters and Vehicle Distribution

Roadway	Segment	Existing ADT	Existing Plus Project ADT	Speed (MPH)	Site Conditions
Allessandro Blvd	Wilmot to Redlands Blvd	4,439	5,262	40	Soft
Vehicle Distribution (Truck Mix)²					
Motor-Vehicle Type		Daytime % (7AM to 7 PM)	Evening % (7 PM to 10 PM)	Night % (10 PM to 7 AM)	Total % of Traffic Flow
Automobiles		75.5	14.0	10.5	97.42
Medium Trucks		48.9	2.2	48.9	1.84
Heavy Trucks		47.3	5.4	47.3	0.74
Notes:					
¹ Per TIA (Redlands Alessandro Commercial Plaza Traffic Impact Analysis, City of Moreno Valley, CA – TJW Engineering, Inc., 09/30/2019)					
² Vehicle distribution data is based on Riverside County Mix data for collectors and secondary roadways.					

The following outlines key adjustments to the REMEL for project site parameter inputs:

- Vertical and horizontal distances (Sensitive receptor distance from noise source)
- Noise barrier vertical and horizontal distances (Noise barrier distance from sound source and receptor).
- Traffic noise source spectra
- Topography

MD utilized the existing 24-hour baseline noise data to calibrate the FHWA traffic noise model within 1 dB of the actual measured level. The model incorporates the parameters outlined in Table 2 and is utilized to describe the change in traffic noise level as a result of said project. Modeling inputs and outputs are provided in Appendix D

5.5 FHWA Roadway Construction Noise Model

The construction noise analysis utilizes the Federal Highway Administration (FHWA) Roadway Construction Noise Model (RNCM), together with several key construction parameters. Key inputs include distance to the sensitive receiver, equipment usage, % usage factor, and baseline parameters for the project site.

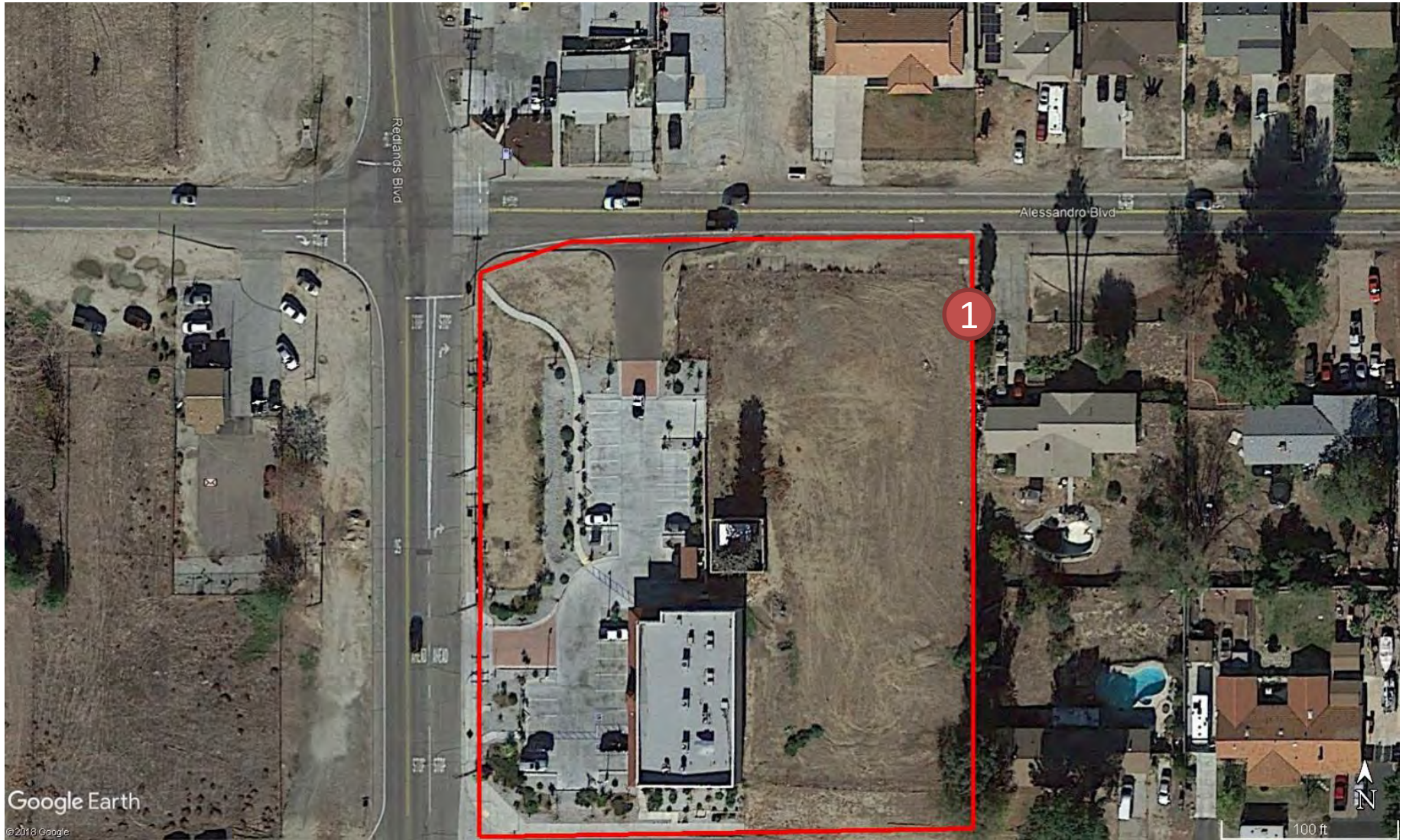
The project was analyzed based on the different construction phases. Construction noise is expected to be loudest during the grading, concrete and building phases of construction. The construction noise calculation output worksheet is located in Appendix E. The following assumptions relevant to short-term construction noise impacts were used:

- It is estimated that construction will occur over a 12 to 18-month time period. Construction noise is expected to be the loudest during the grading, concrete, and building phases.

Exhibit I

Measurement Location

1 = Long-term
Monitoring Location



Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

6.0 Existing Noise Environment

A twenty-four hour (24) ambient noise measurement was conducted at the project site. Noise measurements were taken to determine the existing ambient noise levels. Noise data indicates that traffic along Alessandro Blvd and Redlands Blvd are the primary sources of noise impacting the site and the surrounding area. The ambient data confirms that the existing noise levels do not exceed the City's noise ordinance for residential uses (60 dBA Daytime and 55 dBA Nighttime). Therefore, this assessment will utilize the ambient noise data as a basis and compare levels to said data.

6.1 Long-Term Noise Measurement Results

The results of the long-term noise data are presented in Table 3.

Table 3: Long-Term Noise Measurement Data¹

Date	Time	1-Hour dB(A)							
		LEQ	L _{MAX}	L _{MIN}	L ₂	L ₈	L ₂₅	L ₅₀	L ₉₀
9/25/2019	8AM-9AM	58.6	75.5	40.6	67.2	62.7	58.9	53.7	46.4
9/25/2019	9AM-10AM	55.8	73.3	39.6	64.3	60.7	55.8	48.6	43.4
9/25/2019	10AM-11AM	55.8	74.2	38.7	64.8	60.9	55.1	47.6	43.0
9/25/2019	11AM-12PM	56.4	78.2	38.8	64.7	61.0	55.9	49.6	43.0
9/25/2019	12PM-1PM	57.3	76.9	38.8	66.8	61.0	56.1	49.6	43.6
9/25/2019	1PM-2PM	56.8	77.4	39.0	65.7	61.0	56.6	50.8	45.1
9/25/2019	2PM-3PM	57.3	74.3	41.5	65.5	61.8	57.7	52.1	46.4
9/25/2019	3PM-4PM	58.7	77.8	43.0	65.7	62.5	58.7	53.7	49.1
9/25/2019	4PM-5PM	62.3	90.8	44.7	67.6	63.5	60.1	55.4	49.7
9/25/2019	5PM-6PM	59.4	76.9	44.8	67.5	63.4	60.0	55.3	49.4
9/25/2019	6PM-7PM	59.3	85.6	43.8	65.3	61.8	57.7	52.3	48.0
9/25/2019	7PM-8PM	54.9	69.1	43.3	63.2	60.2	54.9	49.5	45.6
9/25/2019	8PM-9PM	53.1	73.4	41.2	62.8	58.0	50.7	46.6	43.0
9/25/2019	9PM-10PM	56.6	84.0	41.2	63.4	59.3	52.5	46.4	43.0
9/25/2019	10PM-11PM	53.6	77.5	40.7	62.9	57.2	48.2	44.7	42.1
9/25/2019	11PM-12AM	50.6	72.0	33.6	61.0	53.4	45.4	43.3	41.6
9/26/2019	12AM-1AM	48.6	75.5	31.6	59.5	46.7	38.8	36.7	33.2
9/26/2019	1AM-2AM	46.2	66.4	33.4	58.0	44.9	41.1	39.3	36.2
9/26/2019	2AM-3AM	44.4	66.7	31.5	55.9	43.5	38.9	36.0	32.8
9/26/2019	3AM-4AM	46.3	69.3	32.0	58.0	45.3	40.1	37.1	33.5
9/26/2019	4AM-5AM	50.7	71.1	33.3	61.2	54.3	45.3	41.7	37.0
9/26/2019	5AM-6AM	58.5	83.8	36.5	65.4	60.7	54.1	48.6	42.3
9/26/2019	6AM-7AM	56.3	71.6	39.7	64.5	61.5	56.9	49.5	43.7
9/26/2019	7AM-8AM	59.6	83.5	43.1	65.6	62.6	59.7	55.4	49.2
CNEL		60.9							
Notes:									
1. Long-term noise monitoring location (LT1) is illustrated in Exhibit E.									
2. Quietest daytime hour is highlighted in orange.									
3. Quietest Nighttime hour is highlighted in blue.									

Noise data indicates the ambient noise level ranges between 62.3 dBA Leq to 44.4 dBA Leq over the entire 24-hour monitoring period. The measured CNEL is 60.9 dBA. Additional field notes and photographs are provided in Appendix A.

For this evaluation, MD has utilized the quietest hourly level (during daytime and nighttime) and has compared the project's projected noise levels to the quietest hourly ambient. The quietest (lowest) daytime hourly level occurred from 8PM to 9PM (53.1 dBA, Leq(h)) and the quietest (lowest) nighttime hourly level occurred from 2AM to 3AM (44.4 dBA, Leg (h)).

7.0 Future Noise Environment Impacts and Mitigation

This assessment analyzes future noise impacts as a result of the project. The analysis details the estimated exterior noise levels. Stationary noise impacts are analyzed from the on-site noise sources such as cars coming and going.

7.1 Future Exterior Noise

The following outlines the exterior noise levels associated with the proposed project.

7.1.1 Noise Impacts to Off-Site Receptors Due to Stationary Sources

Sensitive receptors that may be affected by project operational noise include existing residences to the north, south, and east. The worst-case stationary noise was modeled using SoundPLAN acoustical modeling software. Worst-case assumes the all project activities are always operational when in reality the noise will be intermittent and cycle on/off depending on customer usage. The project assumes that the gas canopy will be operational twenty four (24) hours a day.

A total of seven (7) receptors were modeled to evaluate the proposed project's operational impact. A receptor is denoted by a yellow dot. All yellow dots represent either a property line or a sensitive receptor such as an outdoor sensitive area (courtyard, patio, backyard, etc).

This study compares the Project's operational noise levels to two (2) different noise assessment scenarios: 1) Project Only operational noise level projections, 2) Project plus ambient noise level projections.

Project Operational Noise Levels

Exhibit F and H shows the "project only" daytime and nighttime operational noise levels at the property lines and/or sensitive receptor area. Exhibit G and I shows the noise contours (daytime and nighttime) at the project site and illustrates how the noise will propagate at the site. Daytime operational noise levels at the adjacent uses are anticipated to range between 31.7 dBA to 50.9 dBA Leq (depending on the location) and nighttime operational noise levels are anticipated to range between __ to __ dBA Leq at receptors R1 through R7.

The "project only" noise projections to the adjacent uses are below the City's 60 dBA daytime residential limit, and 55 dBA nighttime residential limit as outlined within the City's noise ordinance (see Section 4.3).

Project Plus Ambient Operational Noise Levels

Table 4 demonstrates the project plus the ambient (quietest measured hourly average level) noise levels. Project plus ambient noise level projections are anticipated to range between 53.1 to 55.1 dBA Leq at residential receptors (R1 – R7). As previously discussed, the project has been compared to the quietest hourly average ambient noise level for comparative purposes.

Table 4: Worst-case Predicted Daytime (7AM – 10PM) Operational Noise Levels (dBA)¹

Receptor ¹	Floor	Existing Ambient Noise Level (dBA, Leq) ²	Project Noise Level (dBA, Leq) ³	Total Combined Noise Level (dBA, Leq)	Daytime (7AM - 10PM) Stationary Noise Limit (dBA, Leq)	Change in Noise Level as Result of Project
1	1	53.1	31.7	53.1	60.0	0.0
2	1		50.9	55.1		2.0
3	1		47.6	54.2		1.1
4	1		44.0	53.6		0.5
5	1		40.6	53.3		0.2
6	1		39.4	53.3		0.2
7	1		39.2	53.3		0.2

Notes:
¹ Receptors 1 thru 7 represent residential uses or potential residential uses.
³ See Exhibit G for the operational noise level projections at said receptors.

As shown in Table 4, the project will increase the worst-case noise level by approximately 0.0 to 2.0 dBA Leq at residential receptors (R1 – R7). It takes a change of 3 dBA to hear a noticeable difference. The increase in noise level is below the typical noticeable difference in change of noise levels.

Table 5 demonstrates the project plus ambient average noise level during nighttime conditions. The project plus ambient noise level projections are anticipated to range between 46.0 to 46.1 dBA at the receptors R1 through R4.

Table 5: Worst-case Predicted Nighttime (10PM – 7AM) Operational Noise Levels (dBA)

Receptor ¹	Floor	Existing Ambient Noise Level (dBA, Leq) ²	Project Noise Level (dBA, Leq) ³	Total Combined Noise Level (dBA, Leq)	Nighttime (10PM - 7AM) Stationary Noise Limit (dBA, Leq) ⁴	Change in Noise Level as Result of Project
1	1	44.4	24.8	44.4	55	0.0
2	1		42.4	46.5		2.1
3	1		40.7	45.9		1.5
4	1		37.0	45.1		0.7
5	1		33.4	44.7		0.3
6	1		32.3	44.7		0.3
7	1		32.2	44.7		0.3

Notes:
¹ Receptors 1 thru 7 represent residential uses or potential residential uses.
³ See Exhibit G for the operational noise level projections at said receptors.

As shown in Table 5, the project will increase the worst-case noise level by approximately 0.0 to 2.1 dBA Leq at residential receptors (R1 – R7). It takes a change of 3 dBA to hear a noticeable difference. The increase in noise level is below the typical noticeable difference in change of noise levels.

Table 6 provides the characteristics associated with changes in noise levels.

Table 6: Change in Noise Level Characteristics¹

Changes in Intensity Level, dBA	Changes in Apparent Loudness
1	Not perceptible
3	Just perceptible
5	Clearly noticeable
10	Twice (or half) as loud

https://www.fhwa.dot.gov/environMent/noise/regulations_and_guidance/polguide/polguide02.cfm

The change in noise level at the residences would fall within the “Not Perceptible” acoustic characteristic.

7.1.2 Noise Impacts to On/Off-Site Receptors Due to Project Generated Traffic

A worst-case project generated traffic noise level was modeled utilizing the FHWA Traffic Noise Prediction Model - FHWA-RD-77-108. Traffic noise levels were calculated 50 feet from the centerline of the analyzed roadway. The modeling is theoretical and does not take into account any existing barriers, structures, and/or topographical features that may further reduce noise levels. Therefore, the levels are shown for comparative purposes only to show the difference in with and without project conditions. In addition, the noise contours for 60, 65 and 70 dBA CNEL were calculated. The potential off-site noise impacts caused by an increase of traffic from operation of the proposed project on the nearby roadways were calculated for the following scenarios:

Existing Year (without Project): This scenario refers to existing year traffic noise conditions.

Existing Year (Plus Project): This scenario refers to existing year + project traffic noise conditions.

Table 7 compares the without and with project scenario and shows the change in traffic noise levels as a result of the proposed project. It takes a change of 3 dB or more to hear a perceptible difference. As demonstrated in Table 7, the project is anticipated to change the noise 0.7 dBA CNEL. Although there is a nominal increase along these two roadways, the proposed increase would still be below the 65 dBA CNEL residential standard at any off-site receptors. As shown in Table 7, the Existing Plus Project 65 dBA contour would extend an additional 5 from the centerline for Allesandro Boulevard.

Although there is an increase in traffic noise levels the impact is considered less than significant as the noise levels at or near any existing proposed sensitive receptor would be 65 dBA CNEL or less and the change in noise level is less than 3 dBA. No further mitigation is required.

Table 6: Existing Scenario - Noise Levels Along Roadways (dBA CNEL)

Existing Without Project Exterior Noise Levels

Roadway	Segment	CNEL at 50 Ft (dBA)	Distance to Contour (Ft)			
			70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	55 dBA CNEL
Allesandro Blvd	Wilmot St to Redlands Blvd	63.4	18	39	84	181

Existing With Project Exterior Noise Levels

Roadway	Segment	CNEL at 50 Ft (dBA)	Distance to Contour (Ft)			
			70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	55 dBA CNEL
Allesandro Blvd	Wilmot St to Redlands Blvd	64.1	20	44	94	203

Change in Existing Noise Levels as a Result of Project

Roadway ¹	Segment	CNEL at 50 Feet dBA ²			
		Existing Without Project	Existing With Project	Change in Noise Level	Potential Significant Impact
Allesandro Blvd	Wilmot St to Redlands Blvd	63.4	64.1	0.7	No

Notes:
¹ Exterior noise levels calculated at 5 feet above ground level.
² Noise levels calculated from centerline of subject roadway.

Exhibit I

Worst-case Daytime Operational Noise Level

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

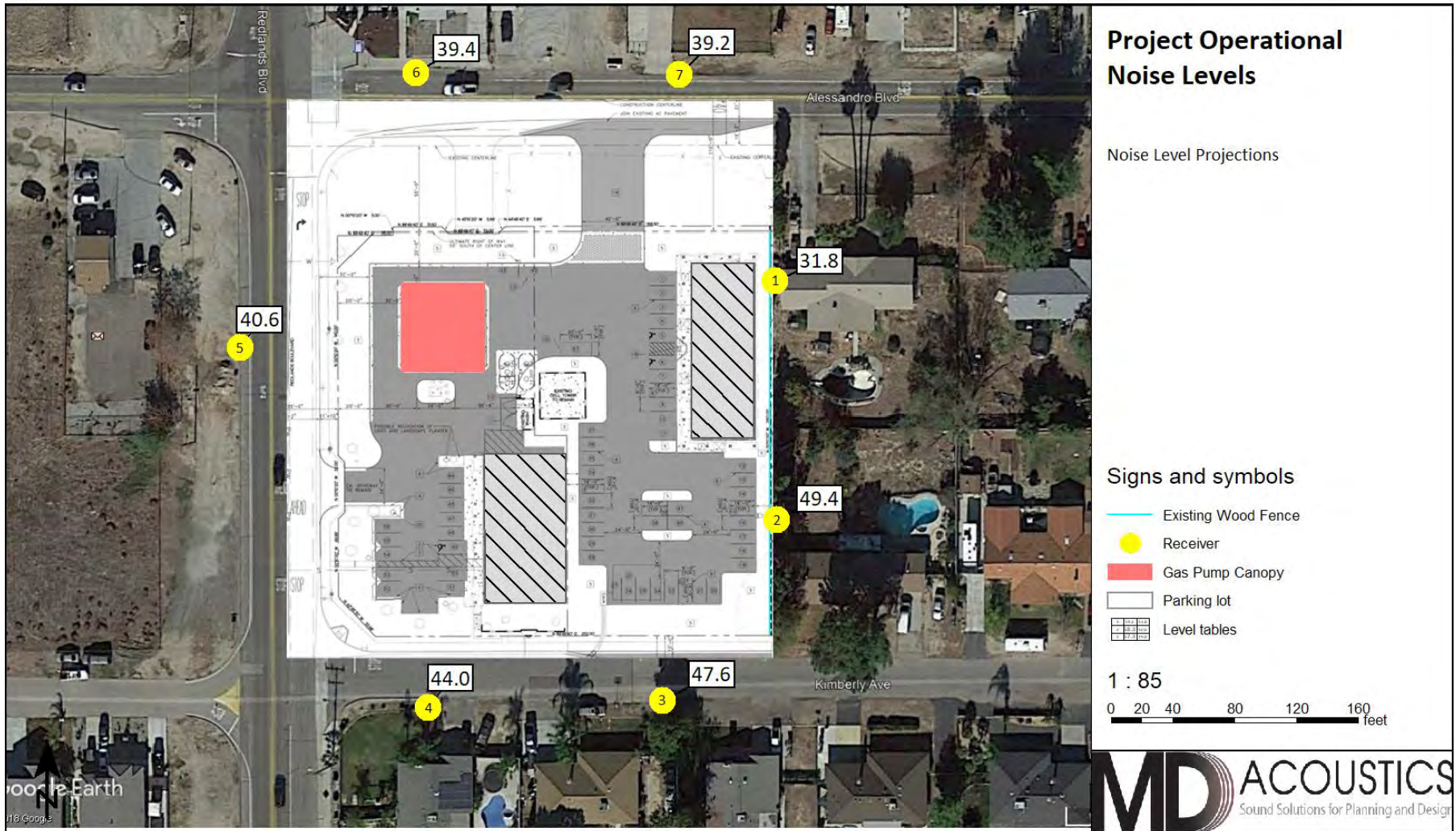


Exhibit C

Worst-case Operational Daytime Noise Level Contour

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)



Exhibit F
 Worst-case Nighttime Operational Noise Level

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

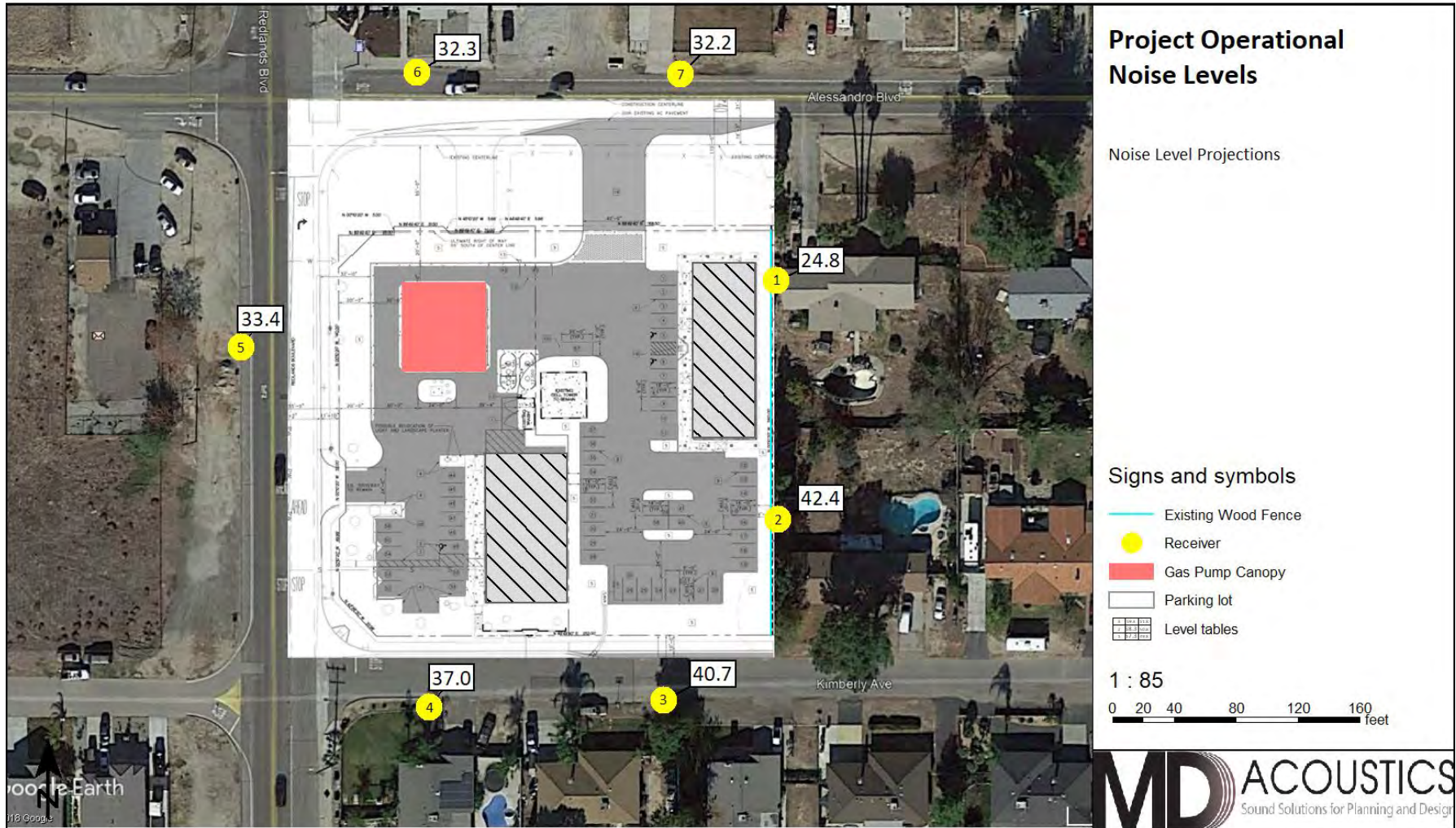


Exhibit Worst-case Nighttime Operational Noise Contour

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)



8.0 Construction Noise Impact

The degree of construction noise may vary for different areas of the project site and also vary depending on the construction activities. Noise levels associated with the construction will vary with the different phases of construction.

8.1 Construction Noise

The Environmental Protection Agency (EPA) has compiled data regarding the noise generated characteristics of typical construction activities. The data is presented in Table 8.

Table 8: Typical Construction Equipment Noise Levels¹

Type	Lmax (dBA) at 50 Feet
Backhoe	80
Truck	88
Concrete Mixer	85
Pneumatic Tool	85
Pump	76
Saw, Electric	76
Air Compressor	81
Generator	81
Paver	89
Roller	74
Notes: ¹ Referenced Noise Levels from FTA noise and vibration manual.	

Construction noise is considered a short-term impact and would be considered significant if construction activities are taken outside the allowable times as described in the City's General Plan Chapter 5.4 Noise N10. Construction is anticipated to occur during the permissible hours according to the City's General Plan. Construction noise will have a temporary or periodic increase in the ambient noise level above the existing within the project vicinity. Furthermore, noise reduction measures are provided to further reduce construction noise. The impact is considered less than significant however construction noise level projections are provided.

Typical operating cycles for these types of construction equipment may involve one or two minutes of full power operation followed by three to four minutes at lower power settings. Noise levels will be loudest during grading phase. A likely worst-case construction noise scenario during grading assumes the use of 1-grader, 1-dozer, 1-excavators, 1-scraper and 1-backhoes operating at 15 feet from the nearest sensitive receptor.

Assuming a usage factor of 40 percent for each piece of equipment, unmitigated noise levels at 15 feet have the potential to reach 83 dBA L_{eq} at the nearest sensitive receptors during building construction. This takes into account a 12-foot temporary sound barrier being placed on the eastern property line during construction.

8.2 Construction Vibration

Construction activities can produce vibration that may be felt by adjacent land uses. The construction of the proposed project would not require the use of equipment such as pile drivers, which are known to generate substantial construction vibration levels. The primary vibration source during construction may be from a bulldozer. A large bulldozer has a vibration impact of 0.089 inches per second peak particle velocity (PPV) at 25 feet which is perceptible but below any risk to architectural damage.

The fundamental equation used to calculate vibration propagation through average soil conditions and distance is as follows:

$$PPV_{\text{equipment}} = PPV_{\text{ref}} (100/D_{\text{rec}})^n$$

Where: PPV_{ref} = reference PPV at 100ft.

D_{rec} = distance from equipment to receiver in ft.

$n = 1.1$ (the value related to the attenuation rate through ground)

The thresholds from the Caltrans Transportation and Construction Induced Vibration Guidance Manual in Table 9 (below) provides general thresholds and guidelines as to the vibration damage potential from vibratory impacts.

Table 9: Guideline Vibration Damage Potential Threshold Criteria

Structure and Condition	Maximum PPV (in/sec)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5

Source: Table 19, Transportation and Construction Vibration Guidance Manual, Caltrans, Sept. 2013.
Note: Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

Table 9 gives approximate vibration levels for particular construction activities. This data provides a reasonable estimate for a wide range of soil conditions.

Table 10: Vibration Source Levels for Construction Equipment¹

Equipment	Peak Particle Velocity (inches/second) at 25 feet	Approximate Vibration Level LV (dVB) at 25 feet
Pile driver (impact)	1.518 (upper range)	112
	0.644 (typical)	104
Pile driver (sonic)	0.734 upper range	105
	0.170 typical	93
Clam shovel drop (slurry wall)	0.202	94
Hydromill (slurry wall)	0.008 in soil	66
	0.017 in rock	75
Vibratory Roller	0.21	94
Hoe Ram	0.089	87
Large bulldozer	0.089	87
Caisson drill	0.089	87
Loaded trucks	0.076	86
Jackhammer	0.035	79
Small bulldozer	0.003	58

¹ Source: Transit Noise and Vibration Impact Assessment, Federal Transit Administration, May 2006.

At a distance of 15 feet (distance residential structure from the property line), a large bulldozer would yield a worst-case 0.156 PPV (in/sec) which may be perceptible for short periods of time during grading along the eastern property line of the project site, but is below any threshold of damage. The impact is less than significant and no mitigation is required.

8.3 Construction Noise Reduction Measures

Construction operations must follow the City's General Plan and the Noise Ordinance, which states that construction, repair or excavation work performed must occur within the permissible hours. To further ensure that construction activities do not disrupt the adjacent land uses, the following measures should be taken:

1. Construction should occur during the permissible hours as defined in N10 Policy
2. During construction, the contractor shall ensure all construction equipment is equipped with appropriate noise attenuating devices.
3. The contractor should locate equipment staging areas that will create the greatest distance between construction-related noise/vibration sources and sensitive receptors nearest the project site during all project construction.
4. Idling equipment should be turned off when not in use.
5. Equipment shall be maintained so that vehicles and their loads are secured from rattling and banging.

6. MD also recommends the implementation of a 12 ft temporary noise barrier on the east property line

9.0 References

State of California General Plan Guidelines: 1998. Governor's Office of Planning and Research

City of Moreno Valley: General Plan. Noise. Chapter 5.

City of Moreno Valley : Municipal Code Chapter 11.80. Noise Regulation

TJW Engineering, – Redlands Alessandro Commercial Plaza Traffic Impact Analysis, August 2019

Appendix A:
Photographs and Field Measurement Data

24-Hour Continuous Noise Measurement Datasheet

Project: Farm Market Development
Site Address/Location: 14058 Redlands Blvd, Moreno Valley, CA
Date: 9/25/2019 to 9/26/2019
Field Tech/Engineer: Jason Schuyler

Site Observations: Clear sky to cloudy, measurement was performed at the eastern property line wall. Ambient noise consisted of traffic along Alessandro Blvd and Redlands blvd and existing Farm Market store.

General Location:
Sound Meter: LD 831 **SN:** 3168
Settings: A-weighted, slow, 1-sec, 1-hour interval, 24-hour duration
Meteorological Con.: _____
Site ID: LT-1

Site Topo: Flat
Ground Type: Soft site, w/ street surface hard

Noise Source(s) w/ Distance:

C/L of Alessandro is 62ft from meter
C/L of Redlands is 318ft from meter
Farm Market Aprx 204ft from meter

Figure 1: LT-1 Monitoring Location

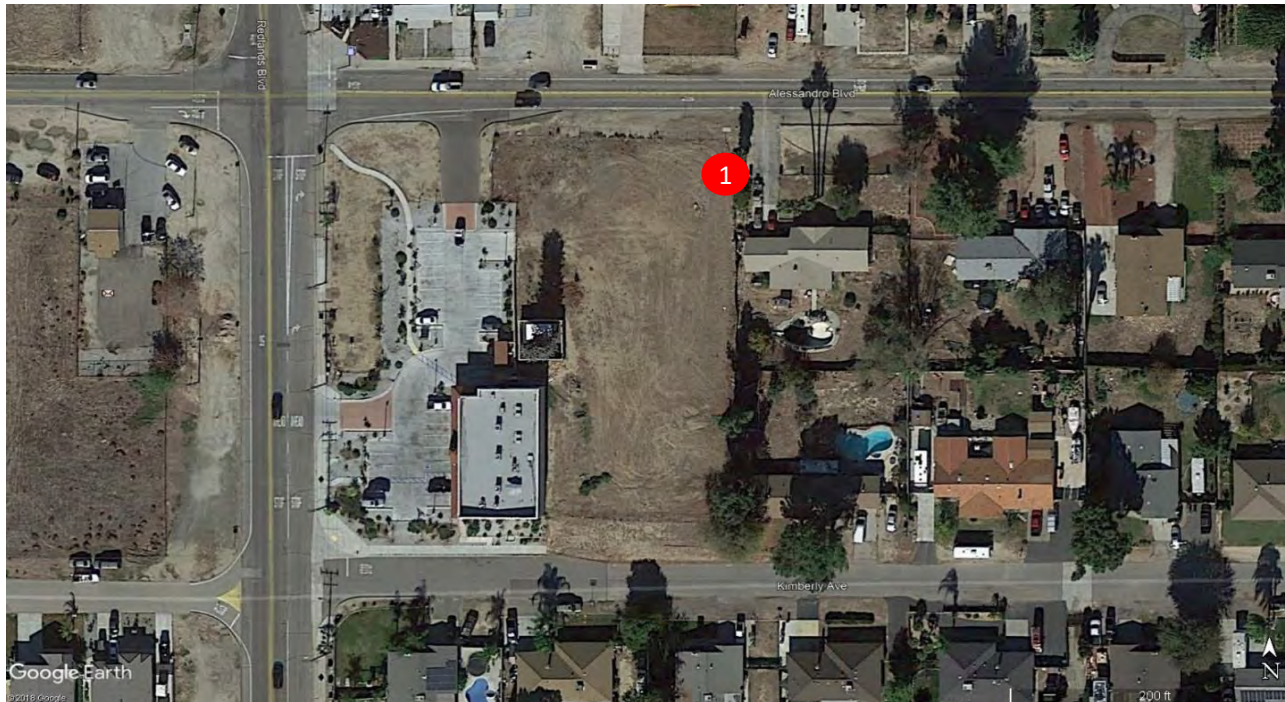


Figure 2: LT-1 Photo



24-Hour Continuous Noise Measurement Datasheet - Cont.

Project: Farm Market Development
Site Address/Location: 14058 Redlands Blvd, Moreno Valley, CA
Site ID: LT-1

Day: 1 of 1

Date	Start	Stop	Leq	Lmax	Lmin	L2	L8	L25	L50	L90
9/25/2019	8:00 AM	9:00 AM	58.6	75.5	40.6	67.2	62.7	58.9	53.7	46.4
9/25/2019	9:00 AM	10:00 AM	55.8	73.3	39.6	64.3	60.7	55.8	48.6	43.4
9/25/2019	10:00 AM	11:00 AM	55.8	74.2	38.7	64.8	60.9	55.1	47.6	43.0
9/25/2019	11:00 AM	12:00 PM	56.4	78.2	38.8	64.7	61.0	55.9	49.6	43.0
9/25/2019	12:00 PM	1:00 PM	57.3	76.9	38.8	66.8	61.0	56.1	49.6	43.6
9/25/2019	1:00 PM	2:00 PM	56.8	77.4	39.0	65.7	61.0	56.6	50.8	45.1
9/25/2019	2:00 PM	3:00 PM	57.3	74.3	41.5	65.5	61.8	57.7	52.1	46.4
9/25/2019	3:00 PM	4:00 PM	58.7	77.8	43.0	65.7	62.5	58.7	53.7	49.1
9/25/2019	4:00 PM	5:00 PM	62.3	90.8	44.7	67.6	63.5	60.1	55.4	49.7
9/25/2019	5:00 PM	6:00 PM	59.4	76.9	44.8	67.5	63.4	60.0	55.3	49.4
9/25/2019	6:00 PM	7:00 PM	59.3	85.6	43.8	65.3	61.8	57.7	52.3	48.0
9/25/2019	7:00 PM	8:00 PM	54.9	69.1	43.3	63.2	60.2	54.9	49.5	45.6
9/25/2019	8:00 PM	9:00 PM	53.1	73.4	41.2	62.8	58.0	50.7	46.6	43.0
9/25/2019	9:00 PM	10:00 PM	56.6	84.0	41.2	63.4	59.3	52.5	46.4	43.0
9/25/2019	10:00 PM	11:00 PM	53.6	77.5	40.7	62.9	57.2	48.2	44.7	42.1
9/25/2019	11:00 PM	12:00 AM	50.6	72.0	33.6	61.0	53.4	45.4	43.3	41.6
9/26/2019	12:00 AM	1:00 AM	48.6	75.5	31.6	59.5	46.7	38.8	36.7	33.2
9/26/2019	1:00 AM	2:00 AM	46.2	66.4	33.4	58.0	44.9	41.1	39.3	36.2
9/26/2019	2:00 AM	3:00 AM	44.4	66.7	31.5	55.9	43.5	38.9	36.0	32.8
9/26/2019	3:00 AM	4:00 AM	46.3	69.3	32.0	58.0	45.3	40.1	37.1	33.5
9/26/2019	4:00 AM	5:00 AM	50.7	71.1	33.3	61.2	54.3	45.3	41.7	37.0
9/26/2019	5:00 AM	6:00 AM	58.5	83.8	36.5	65.4	60.7	54.1	48.6	42.3
9/26/2019	6:00 AM	7:00 AM	56.3	71.6	39.7	64.5	61.5	56.9	49.5	43.7
9/26/2019	7:00 AM	8:00 PM	59.6	83.5	43.1	65.6	62.6	59.7	55.4	49.2

CNEL: 60.9

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

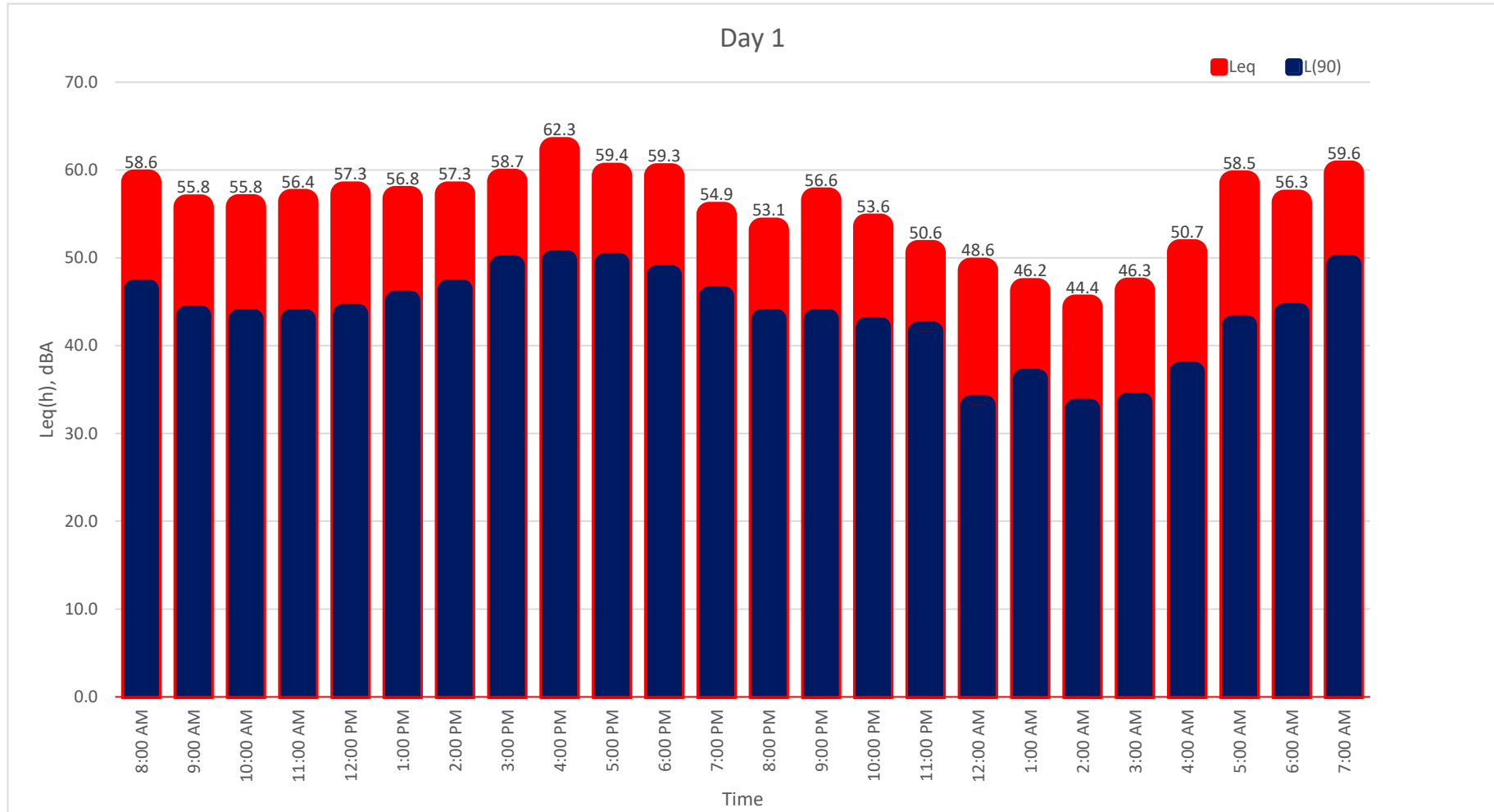
24-Hour Continuous Noise Measurement Datasheet - Cont.

Project: Farm Market Development

Day: 1 of 1

Site Address/Location: 14058 Redlands Blvd, Moreno Valley, CA

Site ID: LT-1



Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Appendix B:
SoundPlan Input/Output

Contribution levels of the receivers

Source name	Level w/o NP		Level w NP		
	Day	Night	Day	Night	
	dB(A)		dB(A)		
1	GF	31.8	24.8	0.0	0.0
1		15.4	8.4	0.0	0.0
2		30.8	23.8	0.0	0.0
3		23.8	16.8	0.0	0.0
4		13.2	6.2	0.0	0.0
5		11.8	4.8	0.0	0.0
Gas Canopy		-0.6	-70.6	0.0	0.0
2	GF	49.4	42.4	0.0	0.0
1		20.8	13.8	0.0	0.0
2		49.4	42.4	0.0	0.0
3		26.9	19.9	0.0	0.0
4		18.5	11.5	0.0	0.0
5		20.8	13.8	0.0	0.0
Gas Canopy		15.6	-54.4	0.0	0.0
3	GF	47.6	40.7	0.0	0.0
1		32.5	25.5	0.0	0.0
2		47.3	40.3	0.0	0.0
3		32.7	25.7	0.0	0.0
4		21.9	14.9	0.0	0.0
5		21.2	14.2	0.0	0.0
Gas Canopy		5.6	-64.4	0.0	0.0
4	GF	44.0	37.0	0.0	0.0
1		42.3	35.3	0.0	0.0
2		38.9	31.9	0.0	0.0
3		20.0	13.0	0.0	0.0
4		20.6	13.6	0.0	0.0
5		10.1	3.1	0.0	0.0
Gas Canopy		21.7	-48.3	0.0	0.0
5	GF	40.6	33.4	0.0	0.0
1		37.8	30.8	0.0	0.0
2		34.4	27.4	0.0	0.0
3		31.8	24.8	0.0	0.0
4		26.7	19.7	0.0	0.0
5		22.5	15.6	0.0	0.0
Gas Canopy		26.2	-43.8	0.0	0.0
6	GF	39.4	32.3	0.0	0.0
1		31.2	24.2	0.0	0.0
2		36.6	29.6	0.0	0.0
3		32.2	25.2	0.0	0.0
4		28.9	21.9	0.0	0.0
5		23.7	16.7	0.0	0.0
Gas Canopy		23.7	-46.3	0.0	0.0
7	GF	39.2	32.2	0.0	0.0
1		28.6	21.6	0.0	0.0
2		36.4	29.4	0.0	0.0
3		33.7	26.7	0.0	0.0
4		27.7	20.7	0.0	0.0
5		23.2	16.2	0.0	0.0
Gas Canopy		21.7	-48.3	0.0	0.0

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Noise emissions of industry sources

Source name	Refer	Level dB(A)	Frequency spectrum [dB(A)]																	Corrections									
			50 Hz	63 Hz	80 Hz	100 Hz	125 Hz	160 Hz	200 Hz	250 Hz	315 Hz	400 Hz	500 Hz	630 Hz	800 Hz	1 kHz	1.3 kHz	1.6 kHz	2 kHz	2.5 kHz	3.2 kHz	4 kHz	5 kHz	6.3 kHz	8 kHz	10 kHz	Cwa dB	Cl dB	CT dB
Gas Canopy	Lw/ur Day Nig	70	27	35	38	47	43	39	43	40	44	48	47	51	58	59	60	60	61	60	60	58	56	54	51	48	-	-	-

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Noise emissions of parking lot traffic

Name	Parking lot type	Low noise trolleys	Size	Movements per hour		Road surface	Separated method	Level dB(A)
				Day	Night			
1	Visitors and staff	-	13 Parking bays	2.500	0.500	Asphaltic driving lane	no	75.6
2	Visitors and staff	-	31 Parking bays	2.500	0.500	Asphaltic driving lane	no	81.3
3	Visitors and staff	-	9 Parking bays	2.500	0.500	Asphaltic driving lane	no	72.5
4	Visitors and staff	-	2 Parking bays	2.500	0.500	Asphaltic driving lane	no	66.0
5	Visitors and staff	-	1 Parking bays	2.500	0.500	Asphaltic driving lane	no	63.0

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Appendix C:
Traffic Noise Modeling Output

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Moreno Valley Farm Market
 ROADWAY: Alessandro blvd
 SEGMENT: Wilmot St to Redlands Blvd
 LOCATION: City of Moreno valley

SCENARIO: Existing

JOB #: 0470-2018-07
 DATE: 1-Oct-19
 ENGINEER: R. Pearson

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = 4,439
 SPEED = 40
 PK HR % = 10
 NEAR LANE/FAR LANE DIST = 12
 ROAD ELEVATION = 0
 GRADE = 0
 PK HR VOL = 444

RECEIVER INPUT DATA

RECEIVER DISTANCE = 50
 DIST C/L TO WALL = 0
 RECEIVER HEIGHT = 5
 WALL DISTANCE FROM RECEIVER = 50
 PAD ELEVATION = 0
 ROADWAY VIEW: LF ANGLE -90
 RT ANGLE 90
 DF ANGLE 180

SITE CONDITIONS

AUTOMOBILES 15
 MED TRUCKS 15 (HARD SITE=10, SOFT SITE=15)
 HVY TRUCKS 15

WALL INFORMATION

HTH WALL = 0 FT
 AMBIENT = 0
 BARRIER = 0 (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.489	0.022	0.489	0.018
HEAVY TRUCKS	0.473	0.054	0.473	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	61.1	59.1	57.8	51.8	60.2	60.8
MEDIUM TRUCKS	52.9	49.0	41.5	50.2	56.4	56.4
HEAVY TRUCKS	53.7	49.7	46.3	50.9	57.1	57.2
VEHICULAR NOISE	62.4	59.9	58.2	55.8	63.0	63.4

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	18	39	84	181
LDN	17	37	79	171

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Moreno Valley Farm Market
 ROADWAY: Alessandro blvd
 SEGMENT: Wilmot St to Redlands blvd
 LOCATION: City of Moreno valley

SCENARIO: E+P

JOB #: 0470-2018-07
 DATE: 1-Oct-19
 ENGINEER: R. Pearson

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT = 5,262
 SPEED = 40
 PK HR % = 10
 NEAR LANE/FAR LANE DIST = 12
 ROAD ELEVATION = 0
 GRADE = 0
 PK HR VOL = 526

RECEIVER INPUT DATA

RECEIVER DISTANCE = 50
 DIST C/L TO WALL = 0
 RECEIVER HEIGHT = 5
 WALL DISTANCE FROM RECEIVER = 50
 PAD ELEVATION = 0
 ROADWAY VIEW: LF ANGLE -90
 RT ANGLE 90
 DF ANGLE 180

SITE CONDITIONS

AUTOMOBILES 15
 MED TRUCKS 15 (HARD SITE=10, SOFT SITE=15)
 HVY TRUCKS 15

WALL INFORMATION

HTH WALL = 0 FT
 AMBIENT = 0
 BARRIER = 0 (0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.489	0.022	0.489	0.018
HEAVY TRUCKS	0.473	0.054	0.473	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	49.7	--
MEDIUM TRUCKS=	4.00	49.6	--
HEAVY TRUCKS =	8.01	49.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	61.9	59.9	58.5	52.5	60.9	61.6
MEDIUM TRUCKS	53.6	49.7	42.2	50.9	57.1	57.1
HEAVY TRUCKS	54.5	50.4	47.0	51.7	57.9	58.0
VEHICULAR NOISE	63.1	60.7	58.9	56.5	63.7	64.1

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	20	44	94	203
LDN	19	41	89	192

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Appendix D:
Construction Noise Modeling Output

Activity	L _{eq} at 15 feet dBA (w/ 12' P/L barrier)*	L _{Max} at 15 feet dBA (w/ 12' P/L barrier)*
Grading	83	87
Building Construction	77	81
Paving	78	82

* See Appendix D for IL Barrier Calculations

Equipment Summary	Reference (dBA) 50 ft L _{max}
Rock Drills	96
Jack Hammers	82
Pneumatic Tools	85
Pavers	80
Dozers	85
Scrappers	87
Haul Trucks	88
Cranes	82
Portable Generators	80
Rollers	80
Tractors	80
Front-End Loaders	86
Hydraulic Excavators	86
Graders	85
Air Compressors	86
Trucks	86

Grading

Noise Level Calculation Prior to Implementation of Noise Attenuation Requirements											
No.	Equipment Description	Reference (dBA) 50 ft Lmax	Quantity	Usage Factor ¹	Distance to Receptor (ft)	Ground Effect	Shielding (dBA)	Calculated (dBA)		Energy	
								Lmax*	Leq		
1	Grader	85	1	40	15	0	0	95.5	91.5	1405456738	
2	Dozer	85	1	40	15	0	0	95.5	91.5	1405456738	
3	Tractor/Backhoe	80	1	40	15	0	0	90.5	86.5	444444444	
4	Excavators	86	1	40	15	0	0	96.5	92.5	1769365202	
5	Scrapers	87	1	40	15	0	0	97.5	93.5	2227498816	
								Lmax*	103	Leq	99
								Lw	134	Lw	130

Source: MD Acoustics, Oct 2019.

1- Percentage of time that a piece of equipment is operating at full power.

dBA – A-weighted Decibels

Lmax- Maximum Level

Leq- Equivalent Level

Feet	Meters	Ground Effect	No Shielding Leq dBA	1 dBA Shielding Leq dBA	2 dBA Shielding Leq dBA	3 dBA Shielding Leq dBA	4 dBA Shielding Leq dBA	5 dBA Shielding Leq dBA	6 dBA Shielding Leq dBA	7 dBA Shielding Leq dBA	8 dBA Shielding Leq dBA	9 dBA Shielding Leq dBA	10 dBA Shielding Leq dBA	11 dBA Shielding Leq dBA	12 dBA Shielding Leq dBA	13 dBA Shielding Leq dBA	14 dBA Shielding Leq dBA	15 dBA Shielding Leq dBA
50	15.2	0	99	98	97	96	95	94	93	92	91	90	89	88	87	86	85	84
60	18.3	0	97	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82
70	21.3	0	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81
80	24.4	0	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81	80
90	27.4	0	93	92	91	90	89	88	87	86	85	84	83	82	81	80	79	78
100	30.5	0	93	92	91	90	89	88	87	86	85	84	83	82	81	80	79	78
110	33.5	0	92	91	90	89	88	87	86	85	84	83	82	81	80	79	78	77
120	36.6	0	91	90	89	88	87	86	85	84	83	82	81	80	79	78	77	76
130	39.6	0	90	89	88	87	86	85	84	83	82	81	80	79	78	77	76	75
140	42.7	0	90	89	88	87	86	85	84	83	82	81	80	79	78	77	76	75
150	45.7	0	89	88	87	86	85	84	83	82	81	80	79	78	77	76	75	74
160	48.8	0	89	88	87	86	85	84	83	82	81	80	79	78	77	76	75	74
170	51.8	0	88	87	86	85	84	83	82	81	80	79	78	77	76	75	74	73
180	54.9	0	87	86	85	84	83	82	81	80	79	78	77	76	75	74	73	72
190	57.9	0	87	86	85	84	83	82	81	80	79	78	77	76	75	74	73	72
200	61.0	0	87	86	85	84	83	82	81	80	79	78	77	76	75	74	73	72
210	64.0	0	86	85	84	83	82	81	80	79	78	77	76	75	74	73	72	71
220	67.1	0	86	85	84	83	82	81	80	79	78	77	76	75	74	73	72	71
230	70.1	0	85	84	83	82	81	80	79	78	77	76	75	74	73	72	71	70
240	73.1	0	85	84	83	82	81	80	79	78	77	76	75	74	73	72	71	70
250	76.2	0	85	84	83	82	81	80	79	78	77	76	75	74	73	72	71	70
260	79.2	0	84	83	82	81	80	79	78	77	76	75	74	73	72	71	70	69
270	82.3	0	84	83	82	81	80	79	78	77	76	75	74	73	72	71	70	69
280	85.3	0	84	83	82	81	80	79	78	77	76	75	74	73	72	71	70	69
290	88.4	0	83	82	81	80	79	78	77	76	75	74	73	72	71	70	69	68
300	91.4	0	83	82	81	80	79	78	77	76	75	74	73	72	71	70	69	68
310	94.5	0	83	82	81	80	79	78	77	76	75	74	73	72	71	70	69	68
320	97.5	0	82	81	80	79	78	77	76	75	74	73	72	71	70	69	68	67
330	100.6	0	82	81	80	79	78	77	76	75	74	73	72	71	70	69	68	67
340	103.6	0	82	81	80	79	78	77	76	75	74	73	72	71	70	69	68	67
350	106.7	0	82	81	80	79	78	77	76	75	74	73	72	71	70	69	68	67
360	109.7	0	81	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66
370	112.8	0	81	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66

Building Construction

Noise Level Calculation Prior to Implementation of Noise Attenuation Requirements											
No.	Equipment Description	Reference (dBA) 50 ft Lmax	Quantity	Usage Factor ¹	Distance to Receptor (ft)	Ground Effect	Shielding (dBA)	Calculated (dBA)		Energy	
								Lmax	Leq		
1	Cranes	82	1	40	15	0	0	92.5	88.5	704396974	
2	Forklift/Tractor	80	1	40	15	0	0	90.5	86.5	444444444	
3	Generator	80	1	40	15	0	0	90.5	86.5	444444444	
4	Tractor/Backhoe	80	1	40	15	0	0	90.5	86.5	444444444	
								Lmax*	97	Leq	93
								Lw	129	Lw	125

Source: MD Acoustics, Oct 2019.

1- Percentage of time that a piece of equipment is operating at full power.

dBA – A-weighted Decibels

Lmax- Maximum Level

Leq- Equivalent Level

Feet	Meters	Ground Effect	No Shielding Leq dBA	1 dBA Shielding Leq dBA	2 dBA Shielding Leq dBA	3 dBA Shielding Leq dBA	4 dBA Shielding Leq dBA	5 dBA Shielding Leq dBA	6 dBA Shielding Leq dBA	7 dBA Shielding Leq dBA	8 dBA Shielding Leq dBA	9 dBA Shielding Leq dBA	10 dBA Shielding Leq dBA	11 dBA Shielding Leq dBA	12 dBA Shielding Leq dBA	13 dBA Shielding Leq dBA	14 dBA Shielding Leq dBA	15 dBA Shielding Leq dBA
50	15.2	0	93	92	91	90	89	88	87	86	85	84	83	82	81	80	79	78
60	18.3	0	92	91	90	89	88	87	86	85	84	83	82	81	80	79	78	77
70	21.3	0	90	89	88	87	86	85	84	83	82	81	80	79	78	77	76	75
80	24.4	0	89	88	87	86	85	84	83	82	81	80	79	78	77	76	75	74
90	27.4	0	88	87	86	85	84	83	82	81	80	79	78	77	76	75	74	73
100	30.5	0	87	86	85	84	83	82	81	80	79	78	77	76	75	74	73	72
110	33.5	0	86	85	84	83	82	81	80	79	78	77	76	75	74	73	72	71
120	36.6	0	85	84	83	82	81	80	79	78	77	76	75	74	73	72	71	70
130	39.6	0	85	84	83	82	81	80	79	78	77	76	75	74	73	72	71	70
140	42.7	0	84	83	82	81	80	79	78	77	76	75	74	73	72	71	70	69
150	45.7	0	84	83	82	81	80	79	78	77	76	75	74	73	72	71	70	69
160	48.8	0	83	82	81	80	79	78	77	76	75	74	73	72	71	70	69	68
170	51.8	0	82	81	80	79	78	77	76	75	74	73	72	71	70	69	68	67
180	54.9	0	82	81	80	79	78	77	76	75	74	73	72	71	70	69	68	67
190	57.9	0	81	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66
200	61.0	0	81	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66
210	64.0	0	81	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66
220	67.1	0	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65
230	70.1	0	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65
240	73.1	0	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64
250	76.2	0	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64
260	79.2	0	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64
270	82.3	0	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63
280	85.3	0	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63
290	88.4	0	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63
300	91.4	0	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63
310	94.5	0	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62
320	97.5	0	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62
330	100.6	0	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62
340	103.6	0	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62	61
350	106.7	0	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62	61
360	109.7	0	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62	61
370	112.8	0	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62	61

Paving

Noise Level Calculation Prior to Implementation of Noise Attenuation Requirements											
No.	Equipment Description	Reference (dBA) 50 ft Lmax	Quantity	Usage Factor ¹	Distance to Receptor (ft)	Ground Effect	Shielding (dBA)	Calculated (dBA)		Energy	
								Lmax	Leq		
1	Pavers	86	1	40	15	0	0	96.5	92.5	1769365202	
2	Rollers	80	1	40	15	0	0	90.5	86.5	4444444444	
3	Paving Equipment	80	1	40	15	0	0	90.5	86.5	4444444444	
								Lmax*	98	Leq	94
								Lw	130	Lw	126

Source: MD Acoustics, Oct 2019.

1- Percentage of time that a piece of equipment is operating at full power.

dBA – A-weighted Decibels

Lmax- Maximum Level

Leq- Equivalent Level

Feet	Meters	Ground Effect	No Shielding Leq dBA	1 dBA Shielding Leq dBA	2 dBA Shielding Leq dBA	3 dBA Shielding Leq dBA	4 dBA Shielding Leq dBA	5 dBA Shielding Leq dBA	6 dBA Shielding Leq dBA	7 dBA Shielding Leq dBA	8 dBA Shielding Leq dBA	9 dBA Shielding Leq dBA	10 dBA Shielding Leq dBA	11 dBA Shielding Leq dBA	12 dBA Shielding Leq dBA	13 dBA Shielding Leq dBA	14 dBA Shielding Leq dBA	15 dBA Shielding Leq dBA
50	15.2	0	94	93	92	91	90	89	88	87	86	85	84	83	82	81	80	79
60	18.3	0	93	92	91	90	89	88	87	86	85	84	83	82	81	80	79	78
70	21.3	0	91	90	89	88	87	86	85	84	83	82	81	80	79	78	77	76
80	24.4	0	90	89	88	87	86	85	84	83	82	81	80	79	78	77	76	75
90	27.4	0	89	88	87	86	85	84	83	82	81	80	79	78	77	76	75	74
100	30.5	0	88	87	86	85	84	83	82	81	80	79	78	77	76	75	74	73
110	33.5	0	87	86	85	84	83	82	81	80	79	78	77	76	75	74	73	72
120	36.6	0	87	86	85	84	83	82	81	80	79	78	77	76	75	74	73	72
130	39.6	0	86	85	84	83	82	81	80	79	78	77	76	75	74	73	72	71
140	42.7	0	85	84	83	82	81	80	79	78	77	76	75	74	73	72	71	70
150	45.7	0	85	84	83	82	81	80	79	78	77	76	75	74	73	72	71	70
160	48.8	0	84	83	82	81	80	79	78	77	76	75	74	73	72	71	70	69
170	51.8	0	84	83	82	81	80	79	78	77	76	75	74	73	72	71	70	69
180	54.9	0	83	82	81	80	79	78	77	76	75	74	73	72	71	70	69	68
190	57.9	0	83	82	81	80	79	78	77	76	75	74	73	72	71	70	69	68
200	61.0	0	82	81	80	79	78	77	76	75	74	73	72	71	70	69	68	67
210	64.0	0	82	81	80	79	78	77	76	75	74	73	72	71	70	69	68	67
220	67.1	0	81	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66
230	70.1	0	81	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66
240	73.1	0	81	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66
250	76.2	0	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65
260	79.2	0	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65
270	82.3	0	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65
280	85.3	0	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64
290	88.4	0	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64
300	91.4	0	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64
310	94.5	0	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63
320	97.5	0	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63
330	100.6	0	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63
340	103.6	0	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63
350	106.7	0	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62
360	109.7	0	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62
370	112.8	0	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62

Barrier insertion loss For Flat Ground

Receiver - North P/L

Enter variables here:

Source Height H_s (ft)	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Receiver Height H_R (ft)	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Barrier Height H_B (ft)	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
Distance Source to barrier (ft)	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Distance Receiver to Barrier (ft)	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Soft Ground = 1; Hard Ground = 0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Calculations

A	10.77033	11.18034	11.66190379	12.206556	12.806248	13.453624	14.142136	14.866069	15.620499	16.401219	17.204651	18.027756	18.867962	19.723083	20.59126	21.470911
B	8.6023253	9.4339811	10.29563014	11.18034	12.083046	13	13.928388	14.866069	15.811388	16.763055	17.720045	18.681542	19.646883	20.615528	21.587033	22.561028
C	15.297059	15.297059	15.29705854	15.297059	15.297059	15.297059	15.297059	15.297059	15.297059	15.297059	15.297059	15.297059	15.297059	15.297059	15.297059	15.297059
P	4.0755963	5.3172625	6.66047539	8.089837	9.5922359	11.156566	12.773465	14.435079	16.134829	17.867216	19.627637	21.41224	23.217786	25.041553	26.881235	28.73488
Ground type H_{eff} (with barrier)	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Ground type H_{eff} (no barrier)	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
H_{eff} (with barrier)	18.5	19.5	20.5	21.5	22.5	23.5	24.5	25.5	26.5	27.5	28.5	29.5	30.5	31.5	32.5	33.5
H_{eff} no barrier	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
G_B	0.4196429	0.4017857	0.383928571	0.3660714	0.3482143	0.3303571	0.3125	0.2946429	0.2767857	0.2589286	0.2410714	0.2232143	0.2053571	0.1875	0.1696429	0.1517857
G_{NB}	0.6339286	0.6339286	0.633928571	0.6339286	0.6339286	0.6339286	0.6339286	0.6339286	0.6339286	0.6339286	0.6339286	0.6339286	0.6339286	0.6339286	0.6339286	0.6339286
$A_{barrier}$	19.095386	20.250355	21.22852671	22.072872	22.812673	23.46878	24.056562	24.587666	25.071118	25.514043	25.922155	26.300095	26.651683	26.980087	27.287967	27.577568

$IL_{barrier}$	16.1	16.2	16.3	16.4	16.5	16.6	16.7	16.8	16.9	17.0	17.1	17.1	17.2	17.3	17.4	17.5
----------------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------

Barrier Height (ft)	IL (dBA)
12	16
13	16
14	16
15	16
16	16
17	17
18	17
19	17
20	17
21	17
22	17
23	17
24	17
25	17
26	17
27	18

VIBRATION LEVEL IMPACT		
Project:	Moreno Valley farm Market	Date: 10/2/19
Source:	Large Bulldozer	
Scenario:	Unmitigated	
Location:	Project Site	
Address:		
PPV = $PPV_{ref}(25/D)^n$ (in/sec)		

DATA INPUT		
Equipment =	2	Large Bulldozer
Type		INPUT SECTION IN BLUE
PPVref =	0.089	Reference PPV (in/sec) at 25 ft.
D =	15.00	Distance from Equipment to Receiver (ft)
n =	1.10	Vibration attenuation rate through the ground
Note: Based on reference equations from Vibration Guidance Manual, California Department of Transportation, 2006, pgs 38-43.		

DATA OUT RESULTS		
PPV =	0.156	IN/SEC
OUTPUT IN RED		

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Appendix H Traffic Studies

Appendix H-1 - Traffic Impact Study



**REDLANDS ALESSANDRO
COMMERCIAL PLAZA
Traffic Impact Analysis
City of Moreno Valley, California**

Prepared for:
Heady Design Inc.
7365 Carnelian St, Suite 239
Rancho Cucamonga, CA 91730

Prepared by:
TJW ENGINEERING, INC.
6 Venture, Suite 225
Irvine, CA 92618

October 15, 2020



TJW ENGINEERING, INC.
TRAFFIC ENGINEERING &
TRANSPORTATION PLANNING
CONSULTANTS

October 15, 2020

Harry Heady
Heady Design Inc.
7365 Carnelian St, Suite 239
Rancho Cucamonga, CA 91730

**Subject: Traffic Impact Analysis: Redlands Alessandro Commercial Plaza,
City of Moreno Valley CA**

Dear Mr. Heady:

TJW ENGINEERING, INC. (TJW) is pleased to present you with this traffic impact analysis for the proposed **Redlands Alessandro Commercial Plaza** project located at the southeast corner of the intersection of Redlands Boulevard and Alessandro Boulevard in the City of Moreno Valley.

This traffic study has been prepared to meet the traffic study requirements for the City of Moreno Valley and assesses the projected traffic operations associated with the proposed project and its impact on the local street network. This report is being submitted to you for review and forwarding to the City of Moreno Valley.

Please contact us at (949) 878-3509 if you have any questions regarding this analysis.
Sincerely,

Thomas Wheat, PE, TE
President

David Chew, PTP
Transportation Planner

Registered Civil Engineer #69467
Registered Traffic Engineer #2565

Jeffrey Chinchilla, PE
Project Engineer



**REDLANDS ALESSANDRO
COMMERCIAL PLAZA
Traffic Impact Analysis
City of Moreno Valley, California**

Prepared for:

Heady Design Inc.
7365 Carnelian St, Suite 239
Rancho Cucamonga, CA 91730

Prepared by:



TJW ENGINEERING, INC.
TRAFFIC ENGINEERING &
TRANSPORTATION PLANNING
CONSULTANTS

6 Venture, Suite 225
Irvine, CA 92618
Thomas Wheat, PE, TE
David Chew, PTP
Jeffrey Chinchilla, PE

October 15, 2020
JN: HDI-19-002

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1.0 EXECUTIVE SUMMARY

This traffic impact analysis (TIA) analyzes the projected traffic operations associated with the proposed **Redlands Alessandro Commercial Plaza** project located at the southeast corner of the intersection of Redlands Boulevard and Alessandro Boulevard. The purpose of this TIA is to evaluate potential circulation system deficiencies that may result from development of the proposed project, and to recommend improvements to achieve acceptable operations, if applicable. This analysis has been prepared in coordination with the City of Moreno Valley via a scoping agreement (See **Appendix A**) and is pursuant to applicable City of Moreno Valley and County of Riverside traffic impact analysis guidelines.

The proposed project consists of a 2,000 square foot commercial building, a 2,500 square foot restaurant, and a gas station with 8 vehicle fueling positions. The site is currently zoned as Village Commercial (VC) and classified as Commercial Land Use in the City of Moreno Valley General Plan Land Use Map. The project site is currently partially occupied by an existing market which will remain and is incorporated into the project site plan. The proposed project land use is permitted in the zone and does not require a zone change or General Plan amendment.

The proposed project is anticipated to be built and generating trips in 2024. A growth rate of 2% was used to account future traffic volumes.

The proposed project is projected to generate 110 total AM peak hour trips, 146 total PM peak hour trips and 1,732 total daily trips. After appropriate pass-by trip discounts, the proposed project is projected to generate 55 net AM peak hour trips, 71 net PM peak hour trips, and 984 net daily trips.

The following seven (7) intersections in the vicinity of the project site have been included in the intersection level of service (LOS) analysis:

1. Wilmot Street/Alessandro Boulevard
2. Redlands Boulevard/Cottonwood Avenue
3. Redlands Boulevard/Alessandro Boulevard
4. Redlands Boulevard/Cactus Avenue
5. Merwin Street/Alessandro Boulevard
6. Redlands Boulevard/Driveway 1
7. Driveway 2/Alessandro Boulevard

The following roadway segments have been analyzed based on the level of service “E” capacities:

1. Alessandro Boulevard between Wilmot Street and Redlands Boulevard.

This traffic analysis follows the *City of Moreno Valley Traffic Impact Analysis Preparation Guide* (August 2007) and *County of Riverside Transportation Department Traffic Impact Analysis Preparation Guide* (April 2008).

The study intersections and roadway segments are analyzed for the following study scenarios:

- Existing Conditions;

- Existing plus Project Conditions (EP);
- Existing plus Ambient plus Cumulative (EAC) Conditions; and
- Existing plus Ambient plus Cumulative plus Project (EACP) Conditions.

1.1 SUMMARY OF ANALYSIS RESULTS

Table ES-1 summarizes the results of the intersection level of service analysis based on the City of Moreno Valley thresholds of significance for analyzing transportation impacts.

Table ES-1: Summary of Significant Impacts at Study Intersections

Intersection	EP	EAC	EACP
#1 - Wilmot Street/Alessandro Boulevard			
#2 - Redlands Boulevard/Cottonwood Avenue			
#3 - Redlands Boulevard/Alessandro Boulevard	Cumulative	Cumulative	Cumulative
#4 - Redlands Boulevard/Cactus Avenue			
#5 - Merwin Street/Alessandro Boulevard			
#6 - Redlands Boulevard/Driveway 1			
#7 - Driveway 2/Alessandro Boulevard			

According to case law such as *Los Angeles Unified Sch. Dist. V City of Los Angeles* (1997) 58 Cal. App. 4th 1019 and *Communities for A Better Env't V California Resource Agency* (2002) 103 Cal. App. 4th 98, a project that results in an increase to an impact that already exceeds the established thresholds contributes to a cumulative impact as opposed to a direct impact. Therefore, as shown in **Table ES-1** all impacts at study intersections are projected to be cumulative impacts.

The proposed project will participate in the cost of off-site improvements through payments to the City and/or County adopted Transportation Uniform Mitigation Fee Program (TUMF) and Development Impact Fee Program (DIF). The project's contribution to the aforementioned transportation impact fee programs or as a fair share contribution towards a cumulatively impacted facility not found to be covered by a pre-existing fee program should be considered sufficient to address the project's fair share towards infrastructure improvements designed to alleviate cumulative project impacts.

Existing Conditions

The study intersections are currently operating at an acceptable LOS during the AM and PM peak hours for *existing* conditions with the exception of the following intersection:

- #3 - Redlands Blvd/Alessandro Blvd (LOS D AM/PM Hour).

The roadway segment is currently operating at an acceptable LOS for *existing* conditions.

Existing Plus Project (EP) Conditions

The study intersections are projected to operate at an acceptable LOS during the AM and PM peak hours for *EP* conditions with the exception of the following intersection:

- #3 - Redlands Blvd/Alessandro Blvd (LOS E AM/LOS D PM Hour).

The roadway segment is projected to operate at an acceptable LOS for *EP* conditions.

Existing plus Ambient plus Cumulative (EAC) Conditions

The study intersections are projected to operate at an acceptable LOS during the AM and PM peak hours for *EAC* conditions with the exception of the following intersection:

- #3 - Redlands Blvd/Alessandro Blvd (LOS F AM/PM Hour).

The roadway segment is projected to operate at an acceptable LOS for *EAC* conditions.

Existing plus Ambient plus Cumulative plus Project (EACP) Conditions

The study intersections are projected to operate at an acceptable LOS during the AM and PM peak hours for *EACP* conditions with the exception of the following intersection:

- #3 - Redlands Blvd/Alessandro Blvd (LOS F AM/PM Hour).

The roadway segment is projected to operate at an acceptable LOS for *EACP* conditions.

1.2 ON-SITE ROADWAY AND SITE ACCESS IMPROVEMENTS

Wherever necessary, roadways adjacent to the proposed project site and site access points will be constructed in compliance with recommended roadway classifications and respective cross-sections in the City of Moreno Valley General Plan or as directed by the City Engineer.

Sight distance at each project access point should be reviewed with respect to standard Caltrans and City sight distance standards at the time of final grading, landscaping and street improvement plans.

Signing/stripping should be implemented in conjunction with detailed construction plans for the project site.

1.3 SUMMARY OF IMPACTS AND RECOMMENDED IMPROVEMENTS

The following improvements are recommended at the impacted study intersections for corresponding conditions to reduce peak hour delay and improve intersection and roadway segment LOS to acceptable conditions:

EP Recommended Improvement (EP-1): Redlands Blvd/Alessandro Blvd – Improve intersection to include a northbound left turn lane and a southbound left turn lane. Signalize existing intersection to include

northbound and southbound protected left turn lanes.

EACP Recommended Improvement (EACP-1): Redlands Blvd/Alessandro Blvd – Improve intersection to include a northbound left turn lane and a southbound left turn lane. Signalize existing intersection to include northbound and southbound protected left turn lanes.

The project’s contribution to applicable development impact fee programs or as a fair share contribution towards a cumulatively impacted facility not found to be covered by a pre-existing fee program should be considered sufficient to address the project’s fair share towards infrastructure improvements to alleviate cumulative project impacts.

1.4 SUMMARY OF LOCAL AND REGIONAL FUNDING MECHANISMS

The proposed project will participate in the cost of off-site improvements through payment of TUMF fees based on the current fees at the time of construction of the proposed project. The proposed project is located within the City of Moreno Valley and will therefore be subject to the City’s Development Impact Fees (DIF). The proposed project will participate in the cost of off-site improvements through payment of City DIF fees based on the current fees at the time of construction of the proposed project.

The project’s contribution to the aforementioned transportation impact fee programs or as a fair share contribution towards a cumulatively impacted facility not found to be covered by a pre-existing fee program should be considered sufficient to address the project’s fair share towards infrastructure improvements designed to alleviate cumulative project impacts. **Table ES-2** calculates the proposed project’s fair share percentage at cumulative impacted intersections.

Table ES-2: Fair Share Calculations

Intersection	Existing AM&PM Peak Hour Volume (A)	EACP AM&PM Peak Hour Volume (B)	Project AM&PM Peak Hour Volume (C)	Fair Share (C) / (B-A)
#3 - Redlands Blvd/Alessandro Blvd	2391	3071	103	15.15%

2.0 INTRODUCTION

This traffic impact analysis (TIA) analyzes the projected traffic operations associated with the proposed **Redlands Alessandro Commercial Plaza** project located at the southeast corner of the intersection of Redlands Boulevard and Alessandro Boulevard. The purpose of this TIA is to evaluate potential circulation system deficiencies that may result from development of the proposed project, and to recommend improvements to achieve acceptable operations, if applicable. This analysis has been prepared in coordination with the City of Moreno Valley via a scoping agreement (See **Appendix A**) and is pursuant to applicable City of Moreno Valley and County of Riverside impact analysis guidelines.

2.1 PROJECT DESCRIPTION

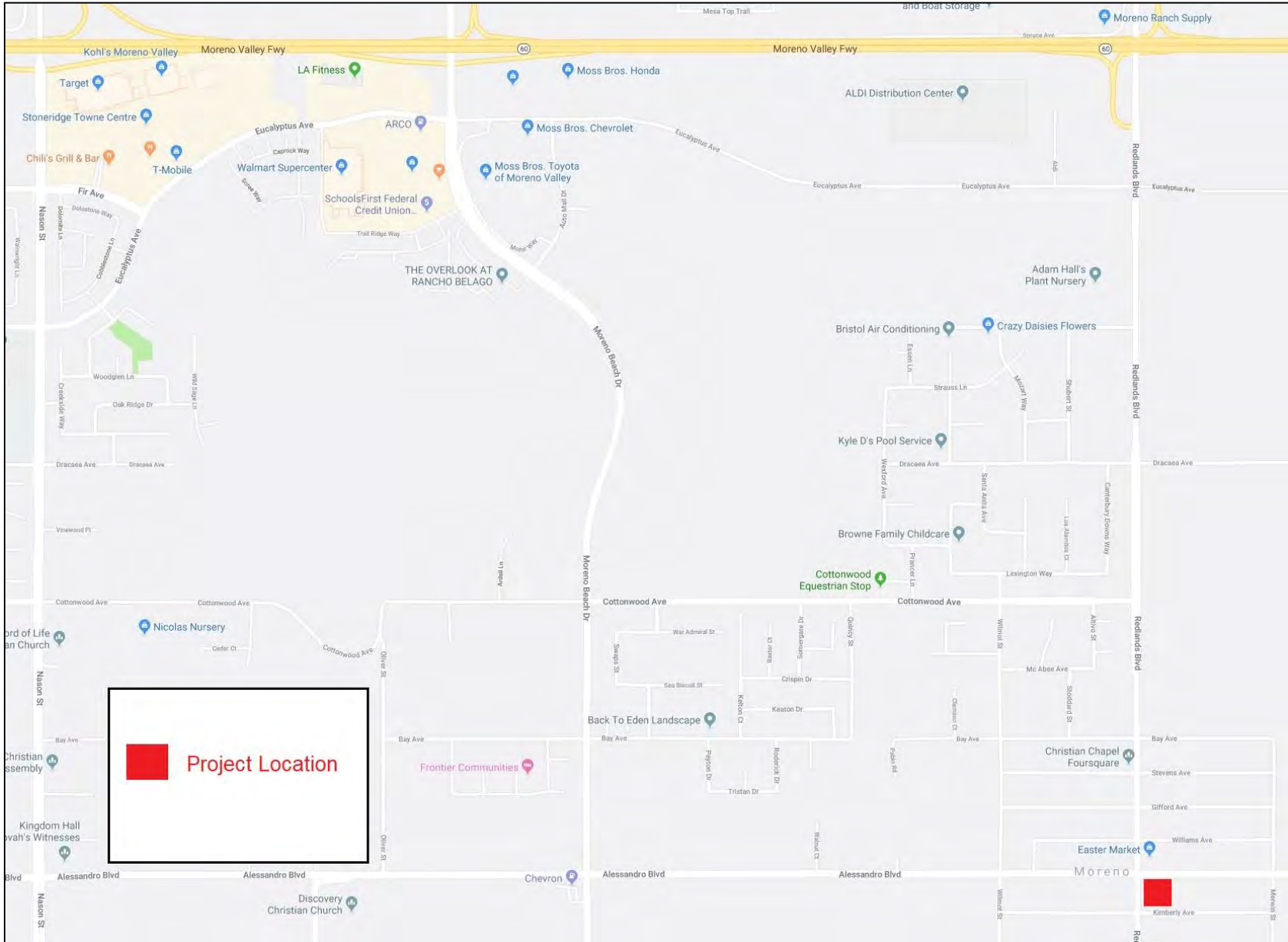
The proposed project consists of a 2,000 square foot commercial building, a 2,500 square foot restaurant, and a gas station with 8 vehicle fueling positions. The site is currently zoned as Village Commercial (VC) and classified as Commercial Land Use in the City of Moreno Valley General Plan Land Use Map. The project site is currently partially occupied by an existing market which will remain and is incorporated to the project site plan. The proposed project land use is permitted in the zone and does not require a zone change or General Plan amendment.

Site access is planned via one right-in/right-out driveway on Redlands Boulevard and one right-in/right-out driveway on Alessandro Boulevard.

The proposed project is anticipated to be built and generating trips in 2024. A growth rate of 2% was used to account future traffic volumes.

Figure 1 shows the project site location. **Exhibit 1** shows the proposed project site plan.

Figure 1 – Project Location



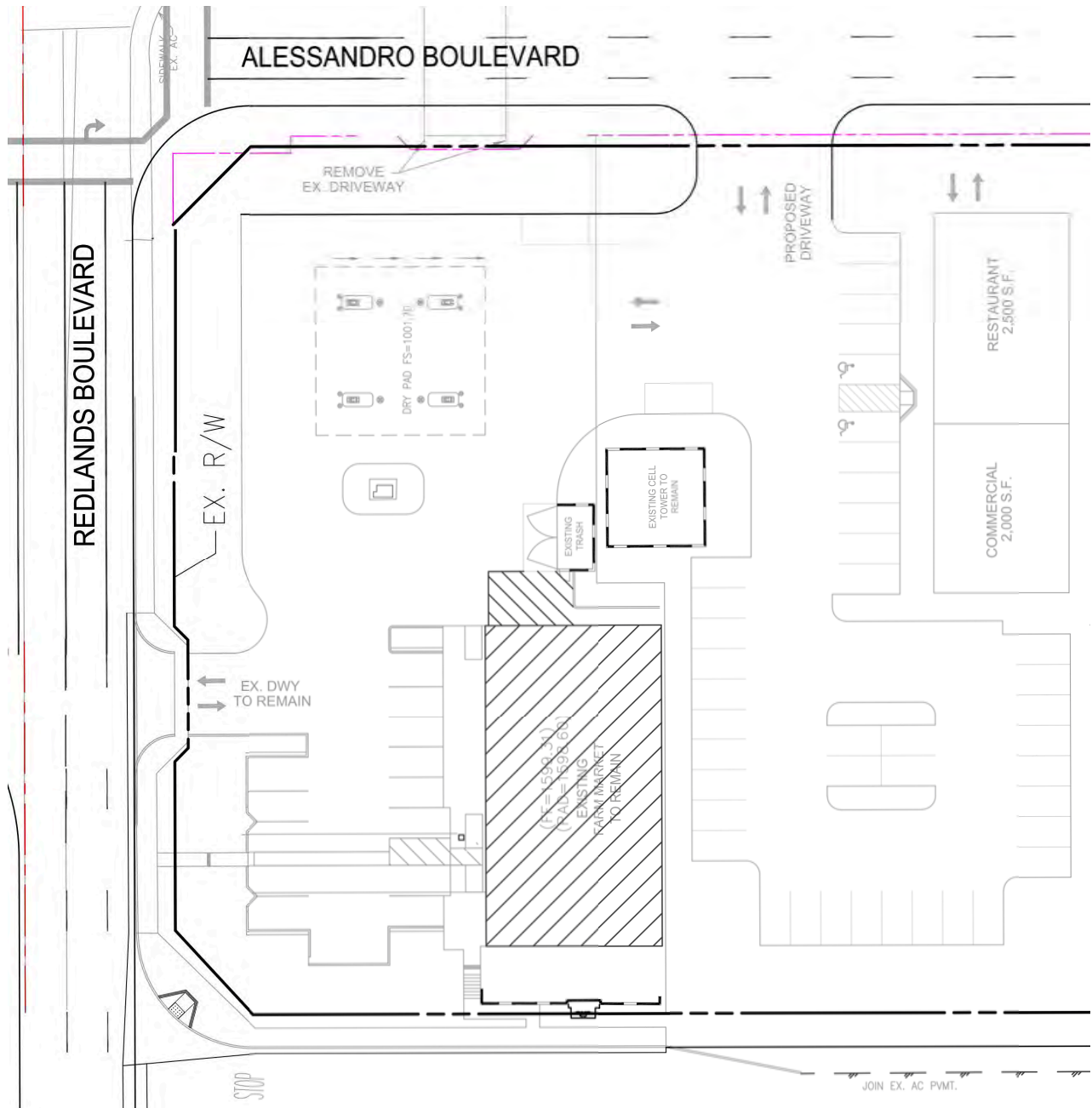


Exhibit 1: Proposed Project Site Plan

HDI-19-002: Redlands Alessandro Commercial Plaza Traffic Impact Analysis



2.2 STUDY AREA

The following seven (7) intersections in the vicinity of the project site have been included in the intersection level of service (LOS) analysis:

1. Wilmot Street/Alessandro Boulevard
2. Redlands Boulevard/Cottonwood Avenue
3. Redlands Boulevard/Alessandro Boulevard
4. Redlands Boulevard/Cactus Avenue
5. Merwin Street/Alessandro Boulevard
6. Redlands Boulevard/Driveway 1
7. Driveway 2/Alessandro Boulevard

The following roadway segments have been analyzed based on the level of service “E” capacities:

1. Alessandro Boulevard between Wilmot Street and Redlands Boulevard.

This traffic analysis follows the *City of Moreno Valley Traffic Impact Analysis Preparation Guide* (August 2007) and *County of Riverside Transportation Department Traffic Impact Analysis Preparation Guide* (April 2008).

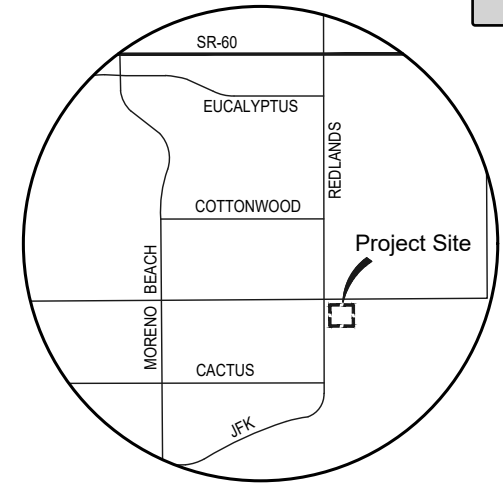
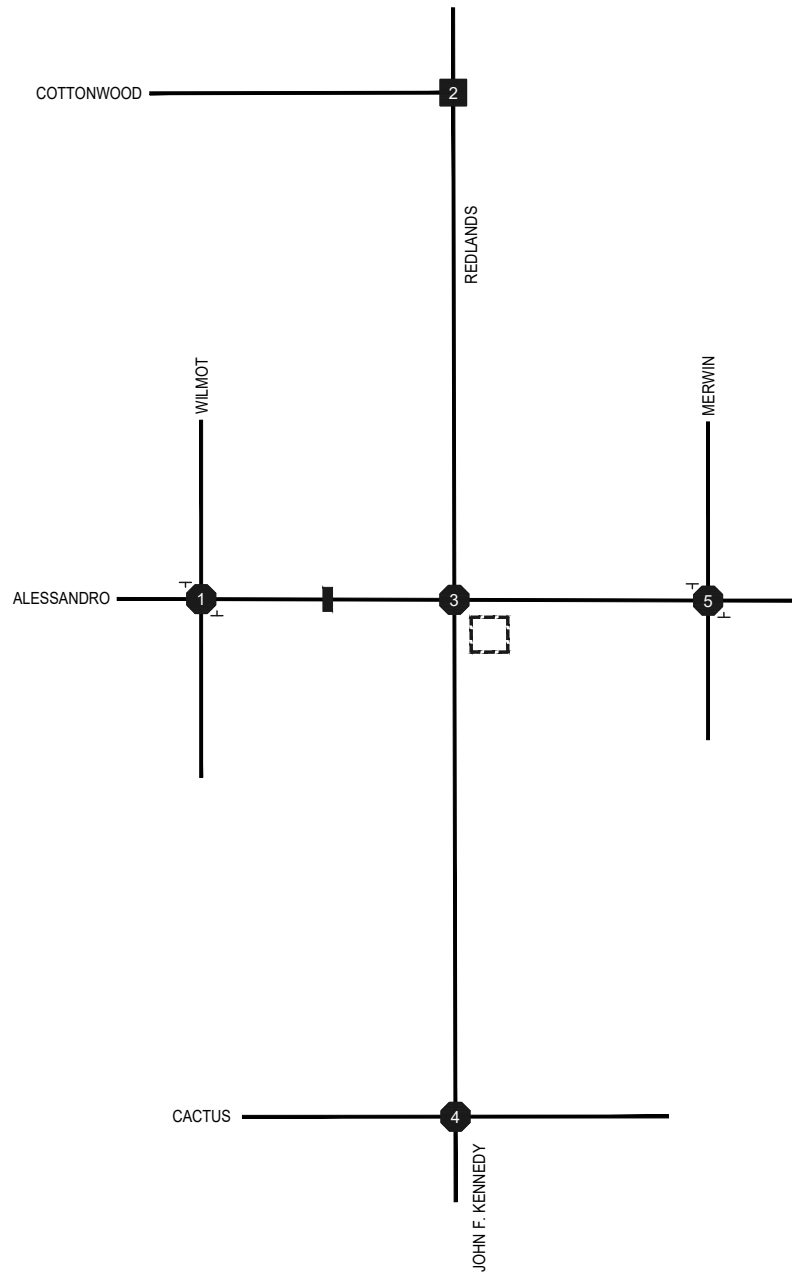
The study intersections and roadway segments are all located within the City of Moreno Valley.

Exhibit 2 shows the location of the study intersections and roadway segments which are analyzed for the following study scenarios:




- Existing Conditions;
- Existing plus Project (EP) Conditions;
- Existing plus Ambient plus Project (EAP) Conditions; and
- Existing plus Ambient plus Project plus Cumulative (EACP) Conditions.

Traffic operations are evaluated for the following time periods:

- Weekday AM Peak Hour occurring within 7:00 AM to 9:00 AM; and
- Weekday PM Peak Hour occurring within 4:00 PM to 6:00 PM.



Legend:

-  Project Site
-  Study Intersection Location
-  Study Roadway Segment



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Exhibit 2: Project Location and Proposed TIA Study Area

HDI-19-002: Redlands Alessandro Commercial Plaza Traffic Impact Analysis



Not to Scale

2.3 ANALYSIS METHODOLOGY

2.3.1 Intersection Analysis Methodology

Level of Service (LOS) is commonly used to describe the quality of flow on roadways and at intersections using a range of LOS from LOS A (free flow with little congestion) to LOS F (severely congested conditions). The definitions for LOS for interruption of traffic flow differ depending on the type of traffic control (traffic signal, unsignalized intersection with side street stops, unsignalized intersection with all-way stops). The *Highway Capacity Manual (HCM) 6* (Transportation Research Board, 2016) methodology expresses the LOS of an intersection in terms of delay time for the intersection approaches. The HCM methodology utilizes different procedures for different types of intersection control.

The City of Moreno Valley traffic study guidelines require signalized intersection operations be analyzed utilizing the HCM 6th Edition methodology. Intersection LOS for signalized intersections is based on the intersections average control delay for all movements at the intersection during the peak hour. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay.

Table 1 describes the general characteristics of traffic flow and accompanying delay ranges at signalized intersections.

Table 1:
HCM – LOS & Delay Ranges – Signalized Intersections

Level Of Service	Description	Delay (in seconds)
A	Very favorable progression; most vehicles arrive during green signal and do not stop. Short cycle lengths.	0 – 10.00
B	Good progression, short cycle lengths. More vehicles stop than for LOS A.	10.01 – 20.00
C	Fair progression; longer cycle lengths. Individual cycle failures may begin to appear. The number of vehicles stopping is significant, though many vehicles still pass through without stopping.	20.01 – 35.00
D	Progression less favorable, longer cycle length and high flow/capacity ratio. The proportion of vehicles that pass through without stopping diminishes. Individual cycle failures are obvious.	35.01 – 55.00
E	Severe congestion with some long standing queues on critical approaches. Poor progression, long cycle lengths and high flow/capacity ratio. Individual cycle failures are frequent.	55.01 – 80.00
F	Very poor progression, long cycle lengths and many individual cycle failures. Arrival flow rates exceed capacity of intersection.	> 80.01

Source: Transportation Research Board, *Highway Capacity Manual*, HCM6 Edition (Washington D.C., 2016).

Collected peak hour traffic volumes have been adjusted using a peak hour factor (PHF) to reflect peak 15-minute volumes. It is a common practice in LOS analysis to conservatively use a peak 15-minute flow rate applied to the entire hour to derive flow rates in vehicles per hour that are used in the LOS analysis. The PHF is the relationship between the peak 15-minute flow rate and the full hourly volume. $PHF = \frac{\text{Hourly Volume}}{4 * \text{Peak 15-Minute Volume}}$. The use of a 15-minute PHF produces a more detailed and conservative analysis compared to analyzing vehicles per hour. Existing PHFs, obtained from the existing traffic counts have been used for all analysis scenarios in this study.

The City of Moreno Valley traffic study guidelines also require unsignalized intersection operations be analyzed utilizing the HCM 6th Edition methodology. Intersection operation for unsignalized intersections is based on the weighted average control delay expressed in seconds per vehicle.

At a two-way or side-street stop-controlled intersection, LOS is calculated for each stop-controlled minor street movement, for the left-turn movement(s) from the major street, and for the intersection as a whole. For approaches consisting of a single lane, the delay is calculated as the average of all movements in that lane. For all-way stop-controlled intersection, LOS is computed for the intersection as a whole.

Table 2 describes the general characteristics of traffic flow and accompanying delay ranges at unsignalized intersections.

Table 2:
HCM – LOS & Delay Ranges – Unsignalized Intersections

Level Of Service	Description	Delay (in seconds)
A	Little or no delays.	0 – 10.00
B	Short traffic delays.	10.01 – 15.00
C	Average traffic delays.	15.01 – 25.00
D	Long traffic delays. Multiple vehicles in queue.	25.01 – 35.00
E	Very long delays. Demand approaching capacity of intersection	35.01 – 50.00
F	Very constrained flow with extreme delays and intersection capacity exceeded.	> 50.01

Source: Transportation Research Board, *Highway Capacity Manual*, HCM6 Edition (Washington D.C., 2016).

This analysis utilizes *Trafficware's Synchro*, Version 10 analysis software for all signalized and unsignalized intersections. Synchro is a macroscopic traffic software program that is based on the signalized intersection capacity analysis specified in Chapter 16 of the HCM. The level of service and capacity analysis performed within Synchro takes the optimization and coordination of signalized intersections within a network into consideration.

2.3.2 Roadway Segment Capacity Analysis

Roadway segment operations have been evaluated using the roadway segment capacity thresholds contained in *City of Moreno Valley Traffic Impact Analysis Preparation Guide*. The daily roadway segment capacity for each type of roadway is shown in **Table 3**. Roadway capacities tend to be guidelines estimated for planning purposes and are affected by factors such as intersection spacing, configuration and control, access control, roadway grade, design geometrics, sight distance and vehicle mix.

Table 3:
City of Moreno Valley Roadway Segment Thresholds

Roadway Classification	Number of Lanes	Level Of Service				
		A	B	C	D	E
Arterial (Divided)	6	33,900	39,400	45,000	50,600	56,300
Arterial (Divided)	4	22,500	26,300	30,000	33,800	37,500
Arterial (Undivided)	4	15,000	17,500	20,000	22,500	25,000
Collector (Industrial)	2	7,500	8,800	10,000	11,300	12,500
Undivided (Residential)	2	N/A	N/A	N/A	N/A	2,000

2.4 PERFORMANCE CRITERIA

2.4.1 City of Moreno Valley

The City of Moreno Valley has established level of service “D” or better as acceptable LOS for all intersections that are adjacent to freeway on/off ramps and/or adjacent to employment generating land uses. The City of Moreno Valley has established level of service “C” or better as acceptable LOS for all other intersections along the designated street and highway system in the General Plan Traffic/Circulation Element. For the purposes of the project study area, level of service “C” is considered acceptable LOS.

2.5 THRESHOLDS OF SIGNIFICANCE

According to California Environmental Quality Act (CEQA) guidelines, a project is considered to cause a significant impact to a transportation system if it:

- Conflicts with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel.
- Conflicts with an applicable congestion management program (CMP), including, but not limited to level of service standards, travel demand measures, or other standards established by the County Congestion Management Agency for roadways or highways.

Conflicts with adopted policies or programs regarding public transit, bicycle or pedestrian facilities, or otherwise decreases the performance or safety of such facilities.

2.5.1 City of Moreno Valley

The following types of traffic impacts are considered to be “significant” under CEQA:

- When existing traffic conditions exceed the General Plan target LOS.
- When project traffic plus ambient growth plus existing traffic will deteriorate the LOS to below the

target LOS, and impacts cannot be mitigated though project conditions of approval.

- When cumulative traffic exceeds the target LOS, and impacts cannot be mitigated though the TUMF and/or DIF network (or other funding mechanism), project conditions of approval, or other implementation mechanism.

The applicant will participate in the funding or construction of off-site improvements, including traffic signals that are needed to serve cumulative traffic conditions through the payment of the Transportation Uniform Mitigation Fees (TUMF), City of Moreno Valley Development Impact Fees (DIF), or a fair share contribution as directed by the City. These fees are collected as part of a funding mechanism aimed at ensuring that regional highways and arterial expansions keep pace with projected population increases. With regard to California Environmental Quality Act (CEQA) guidelines, the above fees will address the project's fair share toward infrastructure improvements designed to alleviate the cumulative impact.

3.0 EXISTING CONDITIONS

3.1 EXISTING CIRCULATION NETWORK/STUDY AREA CONDITIONS

The characteristics of the roadway system in the vicinity of the proposed project site are described in **Table 4**.

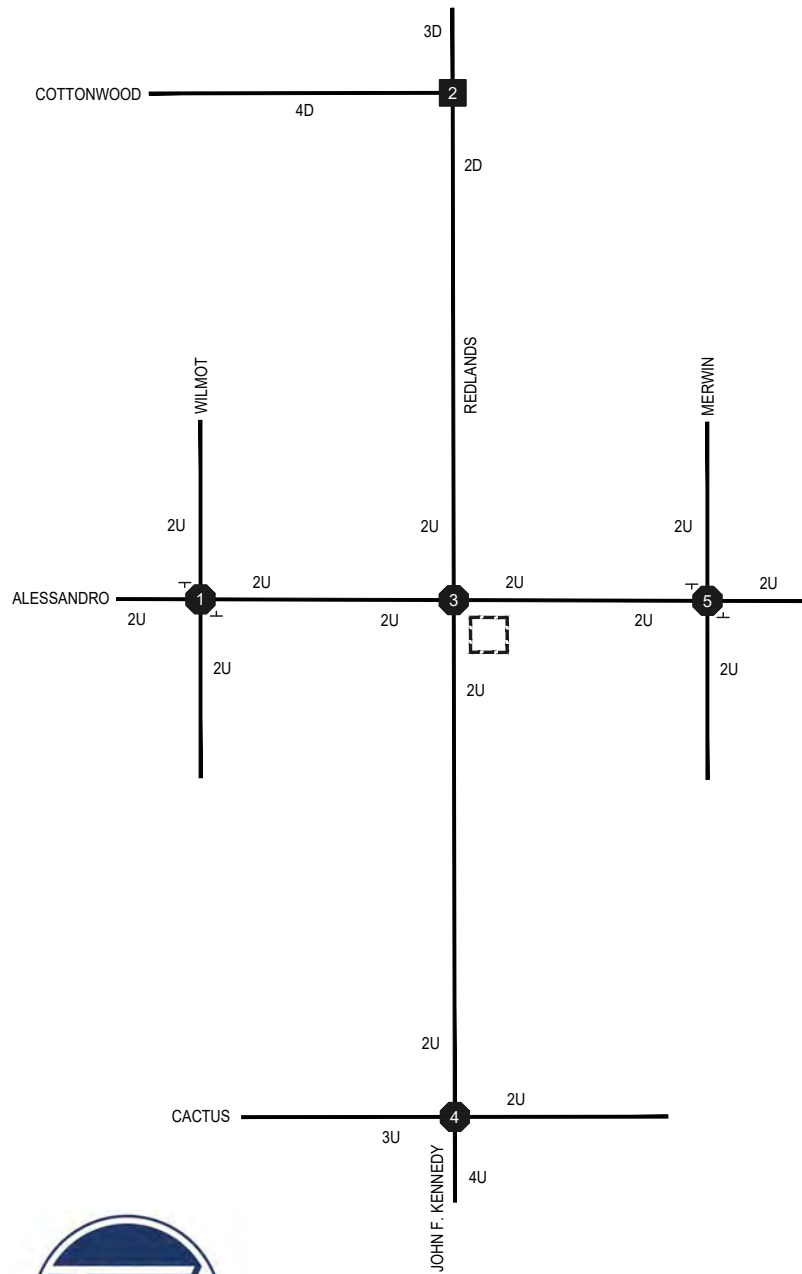
Table 4:
Roadway Characteristics Within Study Area

Roadway	Classification ¹	Jurisdiction	Direction	Existing Travel Lanes	Median Type ²	Speed Limit (mph)	On-Street Parking
Redlands Blvd	Divided Arterial	Moreno Valley	North-South	2-3	NM-RM	50	No
Alessandro Blvd	Divided Major Arterial/Divided Arterial	Moreno Valley	East-West	2-6	NM, TWLTL, RM	40	No
Cottonwood Ave	Minor Arterial	Moreno Valley	East-West	2-4	NM-TWLTL	45	No
Cactus Ave	Minor Arterial	Moreno Valley	East-West	2-4	NM-TWLTL	50	No
Wilmot St	Local Collector	Moreno Valley	North-South	2	NM	25-30	Yes
Merwin St	Local Collector	Moreno Valley	North-South	2	NM	30	Yes

1: Sources: City of Moreno Valley General Plan (2006)

2: TWLTL = Two-Way Left-Turn Lane, RM = Raised Median, NM = No Median.

Exhibit 3 show existing conditions study area intersection and roadway geometry. City of Moreno Valley roadway classifications and cross sections are contained in **Appendix A**.



- Legend:
- Project Site
 - Existing Lane
 - Defacto Lane
 - Signal-Controlled Intersection
 - Stop-Controlled Intersection
 - Cross Street Stop Control
 - 2U 2-Lane Undivided Roadway
 - 2D 2-Lane Divided Roadway
 - 3D 3-Lane Divided Roadway
 - 3U 3-Lane Undivided Roadway
 - 4D 4-Lane Divided Roadway
 - 4U 4-Lane Undivided Roadway

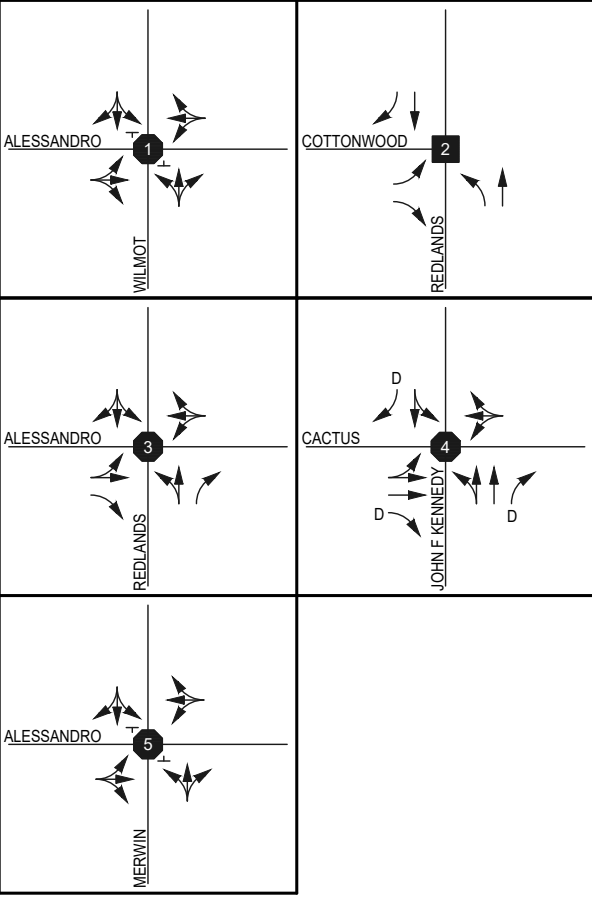


Exhibit 3: Existing Lane Geometry and Intersection Controls

HDI-19-002: Redlands Alessandro Commercial Plaza Traffic Impact Analysis



3.2 CITY OF MORENO VALLEY GENERAL PLAN

The proposed project site is located within the City of Moreno Valley. **Appendix A** contains the current City of Moreno Valley General Plan street classifications and roadway cross sections.

3.3 EXISTING BICYCLE AND PEDESTRIAN FACILITIES

Class II on-street bicycle lanes are planned for the following roadways within the study area:

- Redlands Boulevard north of Cactus Avenue
- Cactus Avenue west of Redlands Boulevard
- Alessandro Boulevard west of Theodore Street

Class III on-street bicycle routes exist on Redlands Blvd/John F. Kennedy Drive south of Cactus Avenue. Class III on-street bicycle lanes are planned for the following roadways within the study area:

- Cottonwood Avenue west of Redlands Boulevard

Pedestrian facilities exist along the east side of Redlands Boulevard along project frontage and extend south to Campbell Avenue. Pedestrian facilities generally do not extend beyond those previously mentioned. There are no marked crosswalks at the intersection of Redlands Boulevard and Alessandro Boulevard. The City of Moreno Valley Bicycle Master Plan is contained in **Appendix A**.

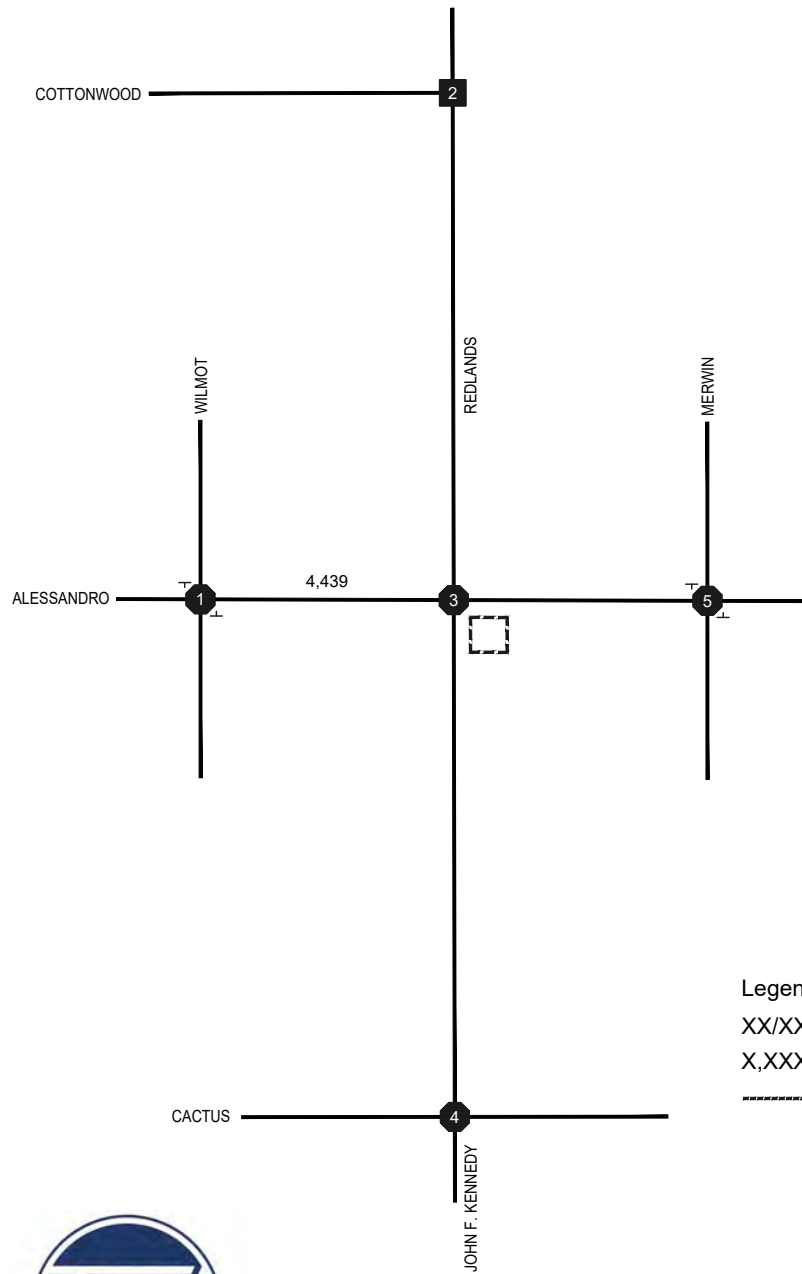
3.4 EXISTING PUBLIC TRANSIT SERVICES

The City of Moreno Valley is served by the Riverside Transit Agency (RTA) which provides local and regional bus service throughout Riverside County. Currently there are no RTA routes running in the vicinity of the proposed project. The nearest transit bus stop is located over one mile away from the project site.

3.5 EXISTING TRAFFIC VOLUMES

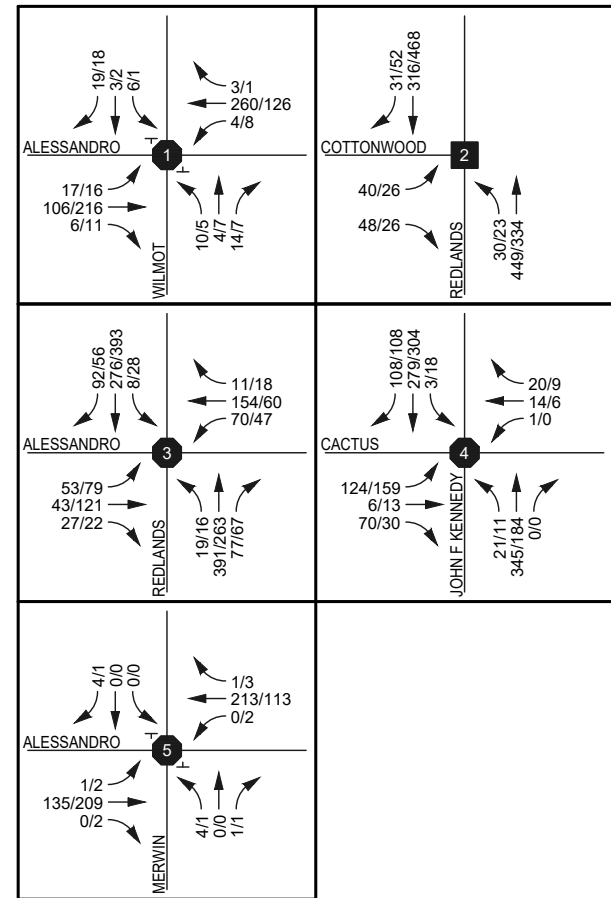
To determine the existing operation of the study intersections, AM and PM peak period traffic counts at the study intersections and 24-hour average daily traffic counts at the study roadway segment were collected on Tuesday August 20, 2019. The traffic volumes used in this analysis are from the highest hour within the peak period counted. Detailed traffic count data is provided in **Appendix B**.

Exhibit 4 shows existing AM and PM peak hour volumes at the study intersections and ADT volumes at the study roadway segment.



Legend:

- XX/XX AM/PM Peak Hour Volumes
- X,XXX Average Daily Traffic Volume
- Project Site



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Exhibit 4: Existing AM/PM Peak Hour Volumes

HDI-19-002: Redlands Alessandro Commercial Plaza Traffic Impact Analysis



Not to Scale

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

3.6 EXISTING CONDITIONS INTERSECTION LEVEL OF SERVICE ANALYSIS

Existing conditions AM and PM peak hour intersection analysis is shown in **Table 5**. Calculations are based on the existing geometrics at the study area intersections as shown in **Exhibit 3**. HCM analysis sheets are provided in **Appendix C**.

Table 5:
Intersection Analysis – Existing Conditions

Intersection	Control Type	Peak Hour	Existing Conditions	
			Delay ¹	LOS
#1 - Wilmot St/Alessandro Blvd	TWSC	AM	10.8	B
		PM	11.7	B
#2 - Redlands Blvd/Cottonwood Ave	Signal	AM	6.7	A
		PM	5.4	A
#3 - Redlands Blvd/Alessandro Blvd	AWSC	AM	30.5	D
		PM	28.6	D
#4 - Redlands Blvd/Cactus Ave	AWSC	AM	14.4	B
		PM	12.7	B
#5 - Merwin St/Alessandro Blvd	TWSC	AM	11.0	B
		PM	10.3	B

Note: TWSC = Two-Way Stop-Control, AWSC = All-Way Stop-Control; Delay shown in seconds per vehicle.
1 = Per the Highway Capacity Manual 6th Edition, overall average delay and LOS are shown for signalized.

As shown in **Table 5**, the study intersections are currently operating at an acceptable LOS during the AM and PM peak hours for *existing* conditions with the exception of the following intersection:

- #3 - Redlands Blvd/Alessandro Blvd (LOS D AM/PM Hour).

3.7 EXISTING CONDITIONS ROADWAY SEGMENT LEVEL OF SERVICE ANALYSIS

Table 6 summarizes existing conditions roadway segment analysis based on the LOS “E” capacities provided in the *City of Moreno Valley Traffic Impact Analysis Preparation Guide*, previously summarized in **Table 3**.

Table 6:
Roadway Segment Analysis – Existing Conditions

Roadway Segment	Existing Cross Section	LOS E Capacity	Existing		
			ADT	V/C	LOS
Alessandro Boulevard between Wilmot Street and Redlands Boulevard	2U	18,750	4,439	0.24	A

Note: V/C = volume to capacity ratio. 2U = Two-Lane Undivided roadway.

As shown in **Table 6**, the study roadway segment is currently operating at LOS A, which is acceptable at this location for *existing* conditions.

3.8 EXISTING CONDITIONS SIGNAL WARRANT ANALYSIS

Traffic signal warrants for existing conditions have been prepared based on existing peak hour intersection volumes at the unsignalized study intersections. **Table 7** summarizes the results of the signal warrant analysis. Detailed warrant analysis sheets are contained in **Appendix D**.

Table 7:
Signal Warrant Analysis - Existing Conditions

Intersection	Signal Warrants Met?	
	AM Peak Hour	PM Peak Hour
#1 - Wilmot St/Alessandro Blvd	No	No
#3 - Redlands Blvd/Alessandro Blvd	Yes	Yes
#4 - Redlands Blvd/Cactus Ave	No	No
#5 - Merwin St/Alessandro Blvd	No	No

Peak hour signal warrants are met at the following unsignalized study intersections:

- #3 – Redlands Blvd/Alessandro Blvd (AM/PM Peak Hour).

4.0 PROPOSED PROJECT

4.1 PROJECT DESCRIPTION

The proposed project consists of a 2,000 square foot commercial building, a 2,500 square foot restaurant, and a gas station with 8 vehicle fueling positions. The site is currently zoned as Village Commercial (VC) and classified as Commercial Land Use in the City of Moreno Valley General Plan Land Use Map. The project site is currently partially occupied by an existing market which will remain and is incorporated to the project site plan. The proposed project land use is permitted in the zone and does not require a zone change or General Plan amendment.

Site access is planned via one right-in/right-out driveway on Redlands Boulevard and one right-in/right-out driveway on Alessandro Boulevard.

The proposed project is anticipated to be built and generating trips in 2024. A growth rate of 2% was used to account future traffic volumes.

Exhibit 1 previously showed the proposed project site plan.

4.2 PROJECT TRIP GENERATION

Trip generation represents the amount of traffic, both inbound and outbound, produced by a development. Determining trip generation for a proposed project is based on projecting the amount of traffic that the specific land uses being proposed will produce. Industry standard *Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition, 2017)* trip generation rates were used to determine trip generation of for most of the proposed project land uses.

Table 8 summarizes the projected AM peak hour, PM peak hour and daily trip generation of the proposed project.

Table 8:
Proposed Project AM/PM Peak Hour Trip Generation

Proposed Land Use ¹	Qty	Unit	Daily Trips (ADTs)		AM Peak Hour					PM Peak Hour					Pass By %'s		
			Rate	Volume	Rate	In:Out Split	Volume			Rate	In:Out Split	Volume			AM	PM	Daily
							In	Out	Total			In	Out	Total			
Shopping Center (820)	1.92	TSF	37.75	72.0	0.94	62:38	1.0	1.0	2.0	3.81	48:52	4.0	4.0	8.0	10%	34%	10%
High Turn-Over Restaurant (932)	2.58	TSF	112.18	289.0	9.94	55:45	14.0	12.0	26.0	9.77	62:38	16.0	10.0	26.0	20%	43%	20%
Convenience Market w/ Gas Pumps (853)	8.0	VFP	172.01	1,376.0	10.28	50:50	42.0	41.0	83.0	14.03	50:50	57.0	56.0	113.0	62%	56%	50%
Sub Total				1,737.0			57.0	54.0	111.0			77.0	70.0	147.0			
Pass-By Trips				-753.0			-29.0	-27.0	-56.0			-40.0	-36.0	-76.0			
Net Total				984.0			28.0	27.0	55.0			37.0	34.0	71.0			

¹: Rates from ITE Trip Generation (10th Edition, 2017)

As shown in **Table 8**, the proposed project is projected to generate 111 total AM peak hour trips, 147 total PM peak hour trips and 1,737 total daily trips. After appropriate pass-by trip discounts, the proposed project is projected to generate 55 net AM peak hour trips, 71 net PM peak hour trips, and 984 net daily trips.

4.3 PROJECT TRIP DISTRIBUTION

Projecting trip distribution involves the process of identifying probable destinations and traffic routes that will be utilized by the proposed project's traffic. The potential interaction between the proposed land use and surrounding regional access routes are considered to identify the probable routes onto which project traffic would distribute. The projected trip distribution for the proposed project is based on anticipated travel patterns to and from the project site.

Exhibit 5A and **Exhibit 5B** show the general projected AM and PM trip distribution of proposed project trips, respectively.

4.4 MODAL SPLIT

The traffic reducing potential of public transit, walking and bicycling have not been considered in this analysis since transit facilities in the study area are limited.

4.5 PROJECT TRIP ASSIGNMENT

Exhibit 6 shows the corresponding projected AM/PM peak hour net trip assignment of proposed project trips.

4.6 CUMULATIVE PROJECTS TRAFFIC

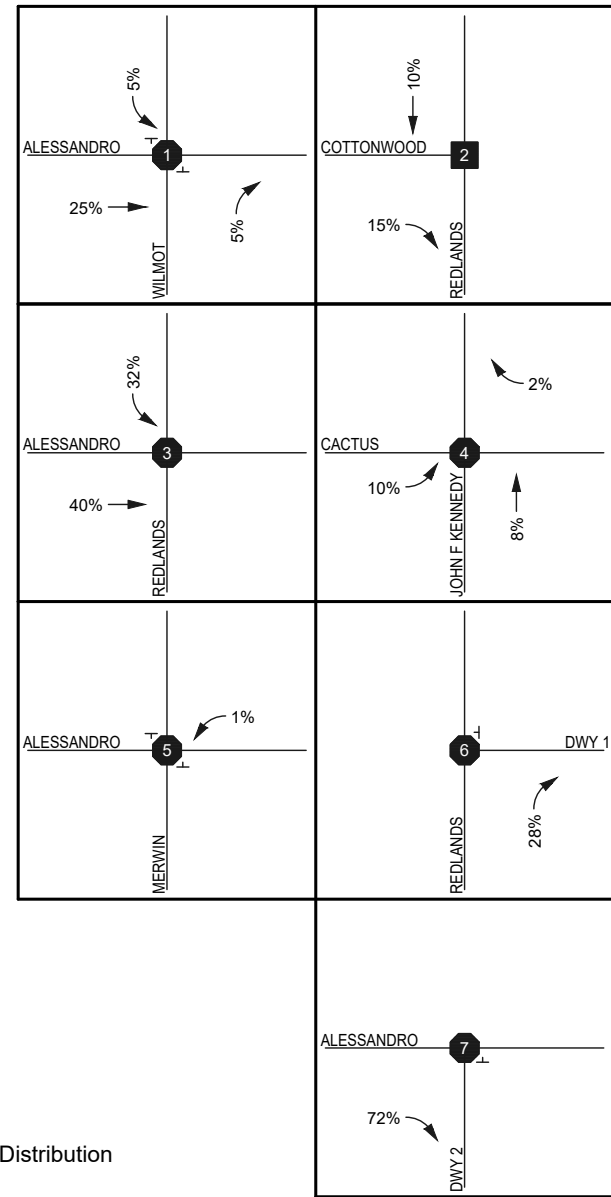
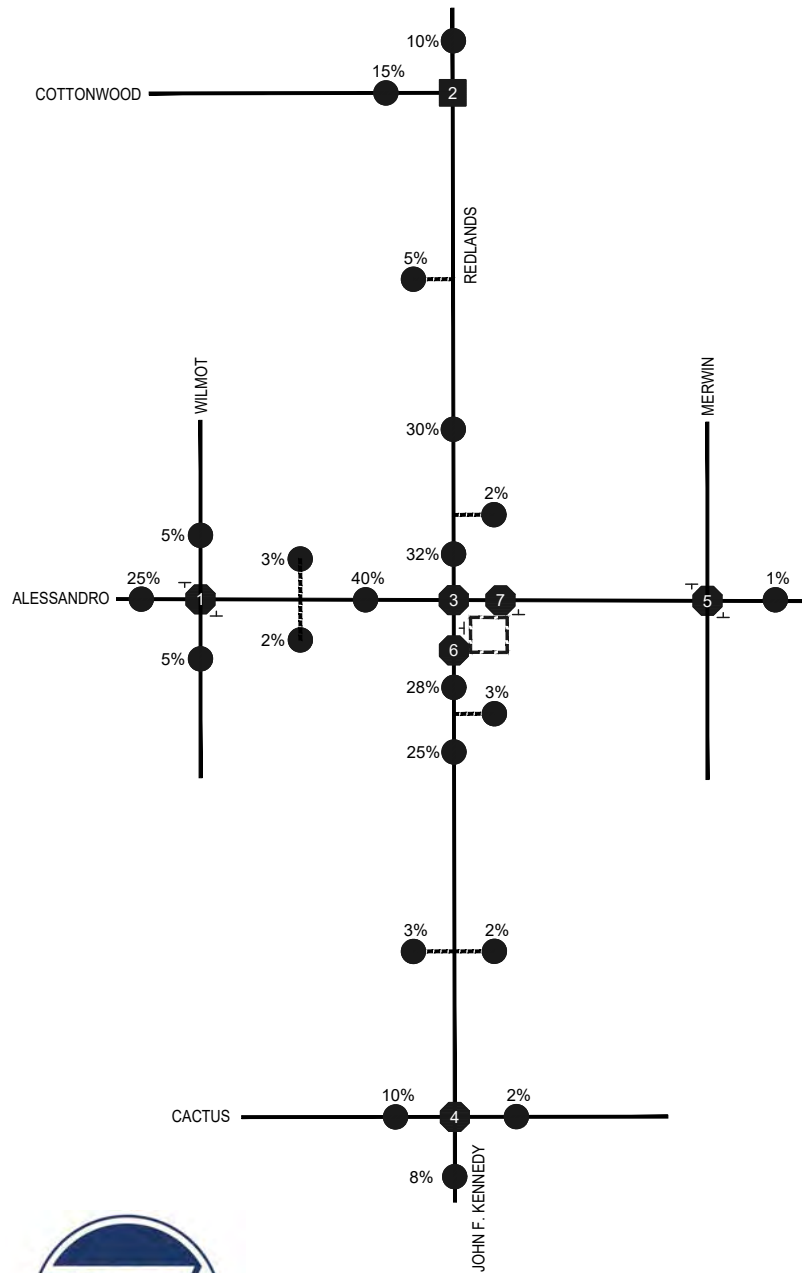
CEQA guidelines require that other reasonably foreseeable development projects which are either approved or are currently being processed in the study area also be included as part of a cumulative analysis scenario. A list of cumulative projects was developed for this analysis through consultation with City of Moreno Valley staff, and obtainment of current development status reports. **Exhibit 7** shows the location of nearby cumulative developments. A summary of the cumulative projects land uses is shown in **Table 9**.

Table 9:
Cumulative Projects List

Project	Land Use	Qty	Units	AM Peak Hour			AM Peak Hour			Daily
				In	Out	Total	In	Out	Total	
1	26th Crop	235.00	DU	43	130	174	147	86	233	2,218
2	Motlagh Family Trust	25.00	DU	5	14	19	16	9	25	236
3	Sid Chan	7.00	DU	1	4	5	4	3	7	66
4	Canterbury	45.00	DU	8	25	33	28	16	45	425
5	Michael De La Torre	6.00	DU	1	3	4	4	2	6	57
6	Hakan Buvan	8.00	DU	1	4	6	5	3	8	76
7	KB Homes	159.00	DU	29	88	118	99	58	157	1,501
Total				88	268	359	303	177	481	4,579

¹ DU = Dwelling Units; TSF = Thousand Square Feet; RM = Rooms

² Source: Institute of Transportation Engineers, Trip Generation Manual, 10th Edition, 2017 (unless otherwise noted)



Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)



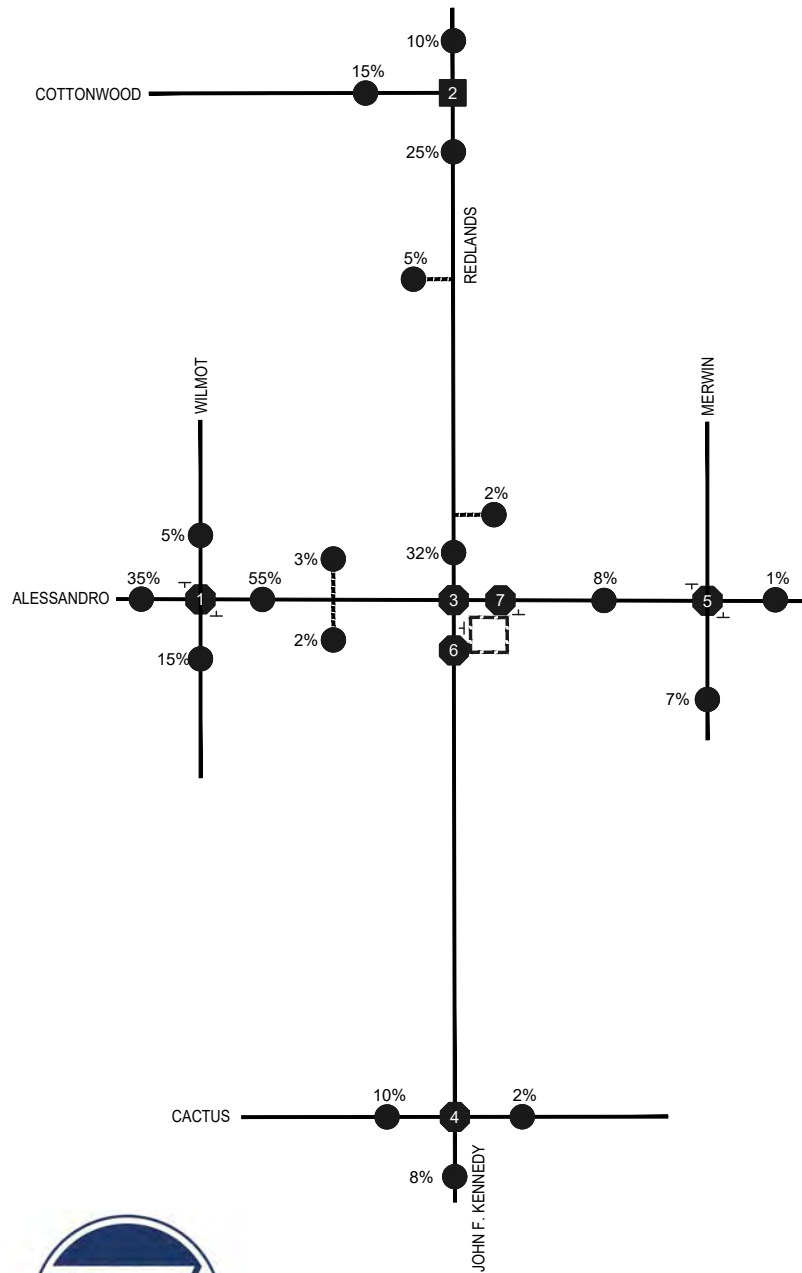
TJW ENGINEERING, INC.

Exhibit 5A: Inbound Trip Distribution at Study Intersections

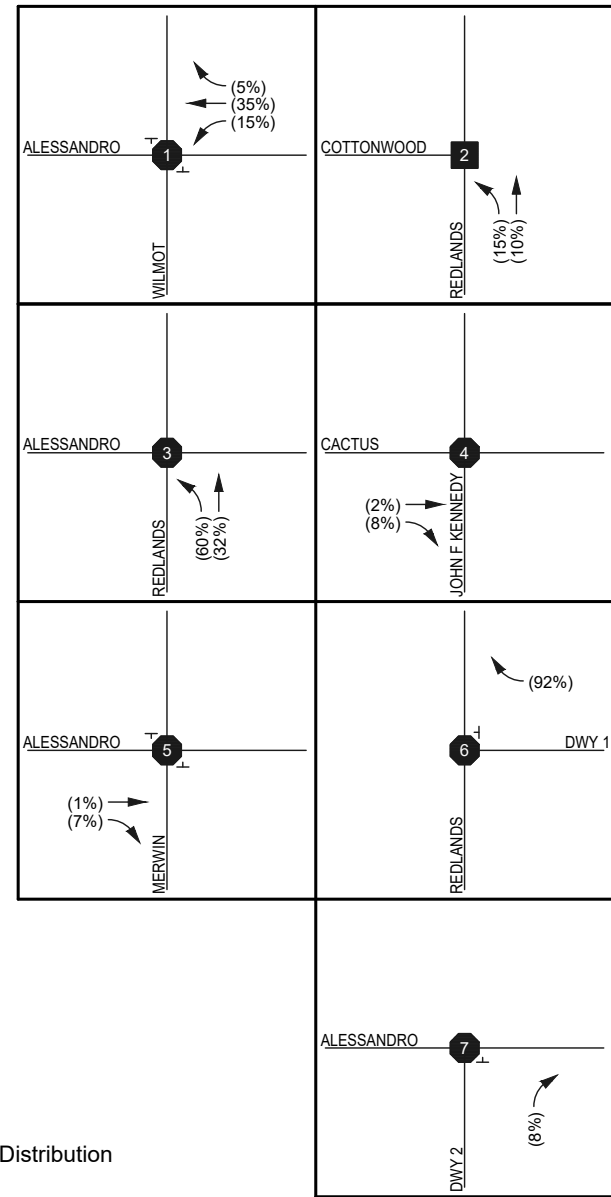
HDI-19-002: Redlands Alessandro Commercial Plaza Traffic Impact Analysis



Not to Scale



Legend:
 XX% Percent Trip Distribution
 ----- Project Site



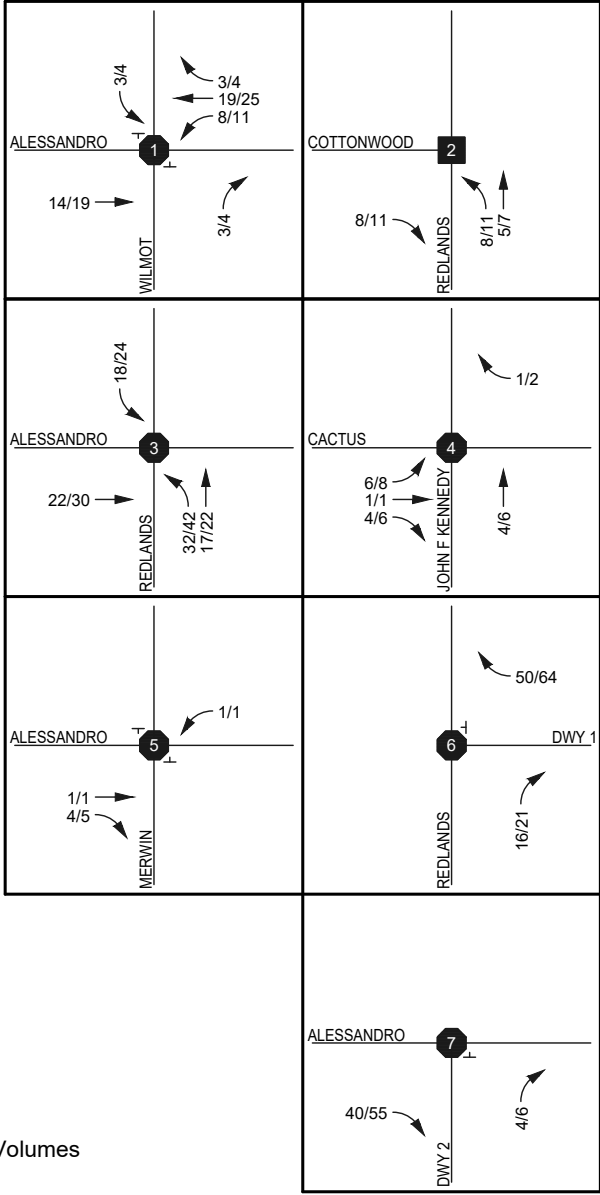
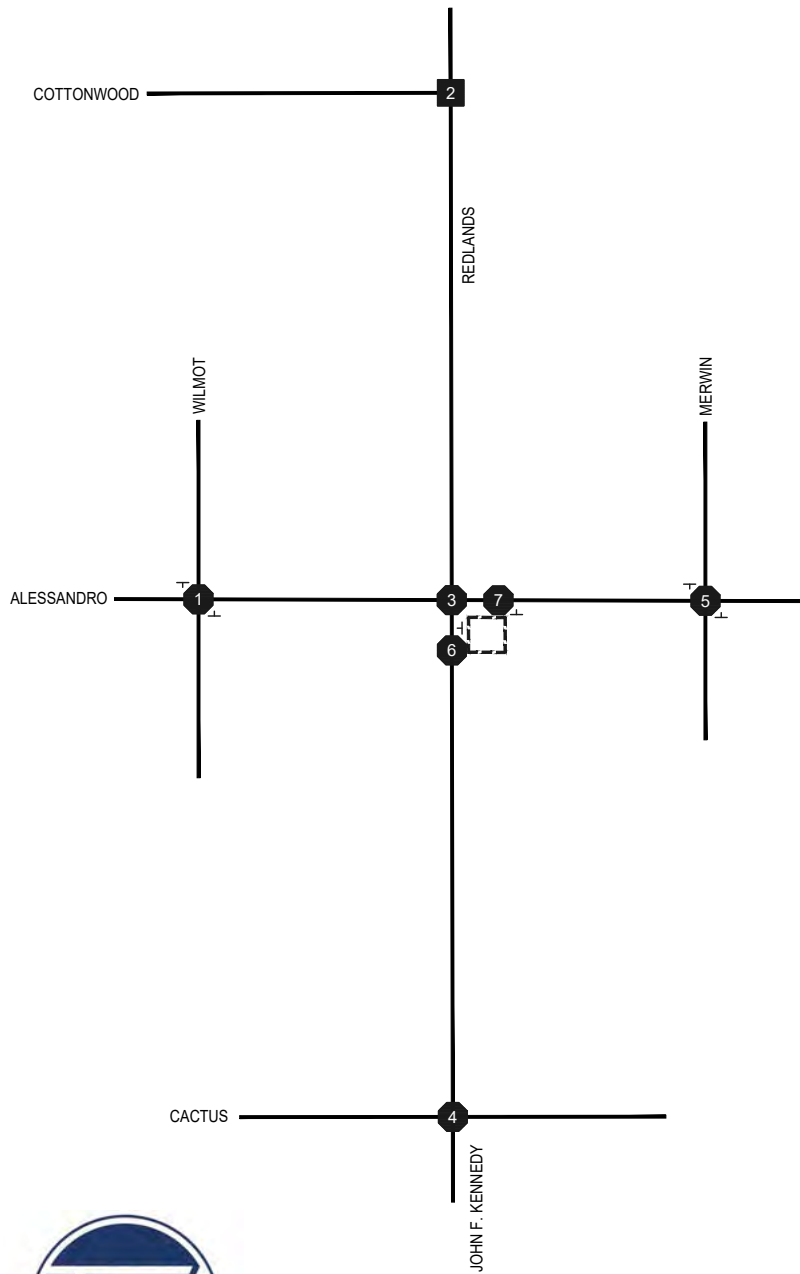
TJW ENGINEERING, INC.

Exhibit 5B: Outbound Trip Distribution at Study Intersections

HDI-19-002: Redlands Alessandro Commercial Plaza Traffic Impact Analysis



Not to Scale



Legend:
 XX/XX AM/PM Peak Hour Volumes
 ----- Project Site

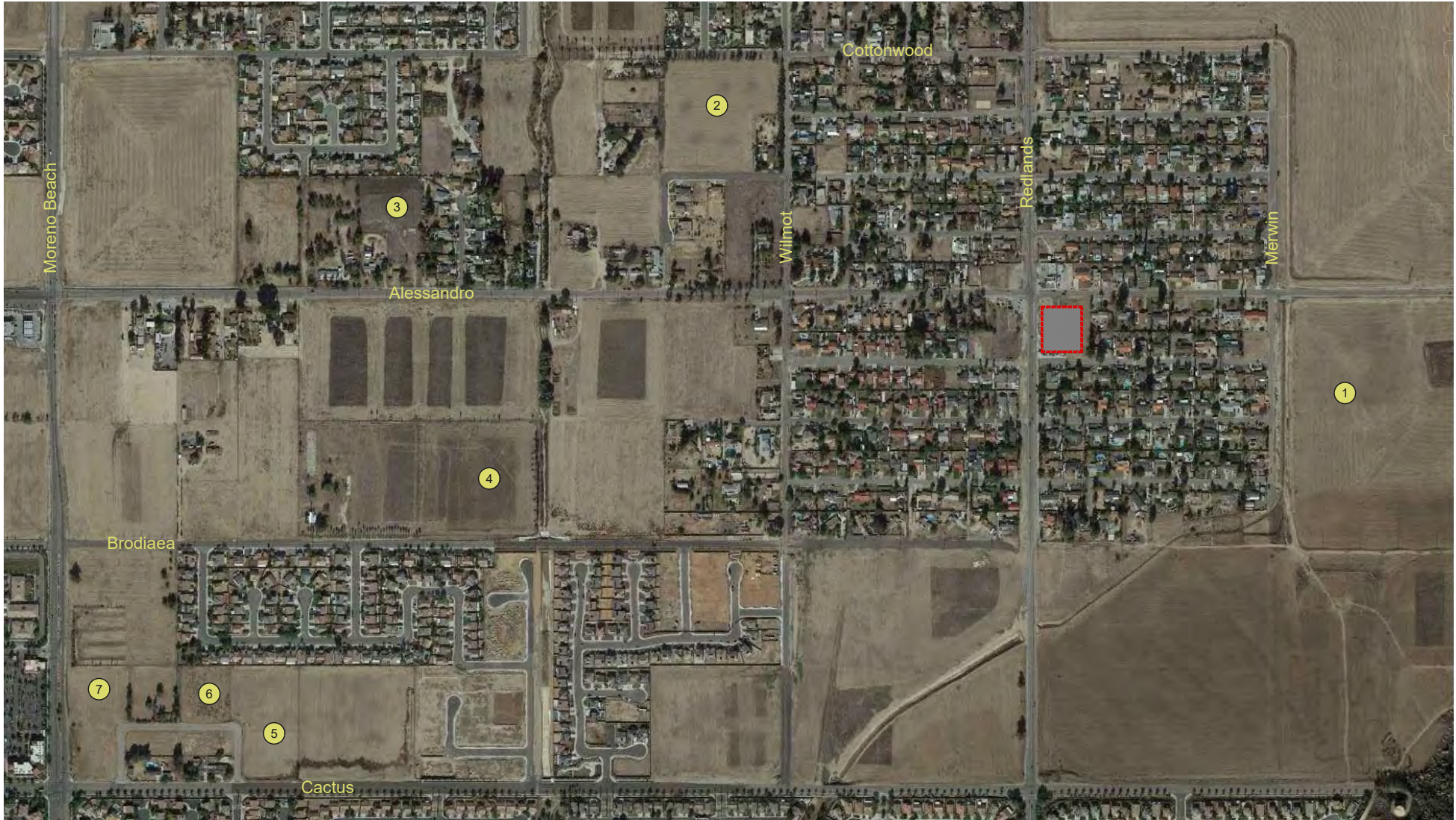


Exhibit 6: Projected Trip Assignment of Proposed Project Trips

HDI-19-002: Redlands Alessandro Commercial Plaza Traffic Impact Analysis



Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)





- Legend:
-  Approximate Cumulative Project Locations
 -  Project Site



Exhibit 7: Cumulative Project Map

HDI-19-002: Redlands Alessandro Commercial Plaza Traffic Impact Analysis

TJW ENGINEERING, INC.



Not to Scale

5.0 EXISTING PLUS PROJECT CONDITIONS (EP)

Existing plus project (EP) conditions analysis is intended to identify the project-related impacts on the existing near-term circulation system by comparing *EP* conditions to *existing* conditions. Consistent with CEQA, *EP* analysis is intended to identify direct impacts associated with the development of the proposed project.

5.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for the *existing plus project* scenario are consistent with those previously shown in **Exhibit 3**, with the exception of project driveways and other facilities assumed to be constructed by the proposed project to provide site access.

5.2 EP TRAFFIC VOLUMES

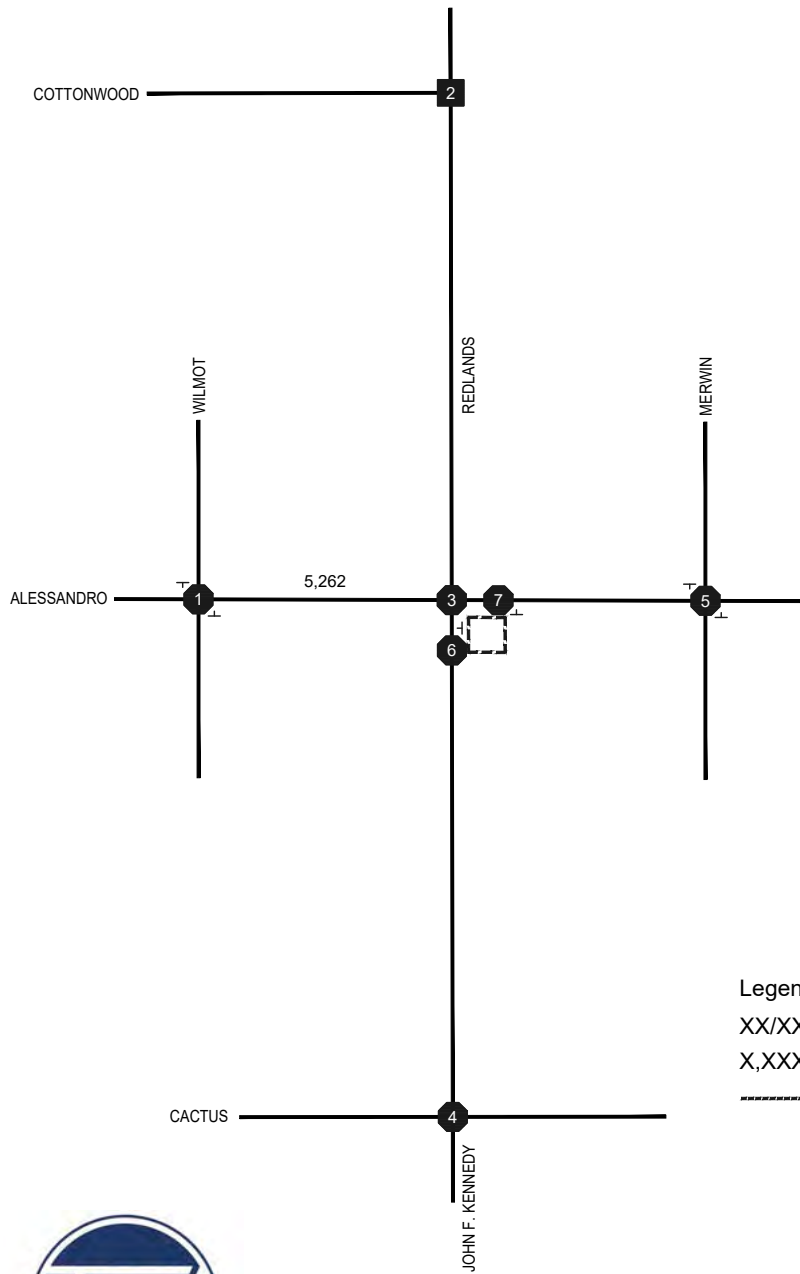
EP volumes include existing traffic plus the addition of the traffic projected to be generated by the proposed project.

EP Volumes = Existing (2019) Counts + Project Traffic

Exhibit 8 shows *EP* AM and PM peak hour volumes at the study intersections.

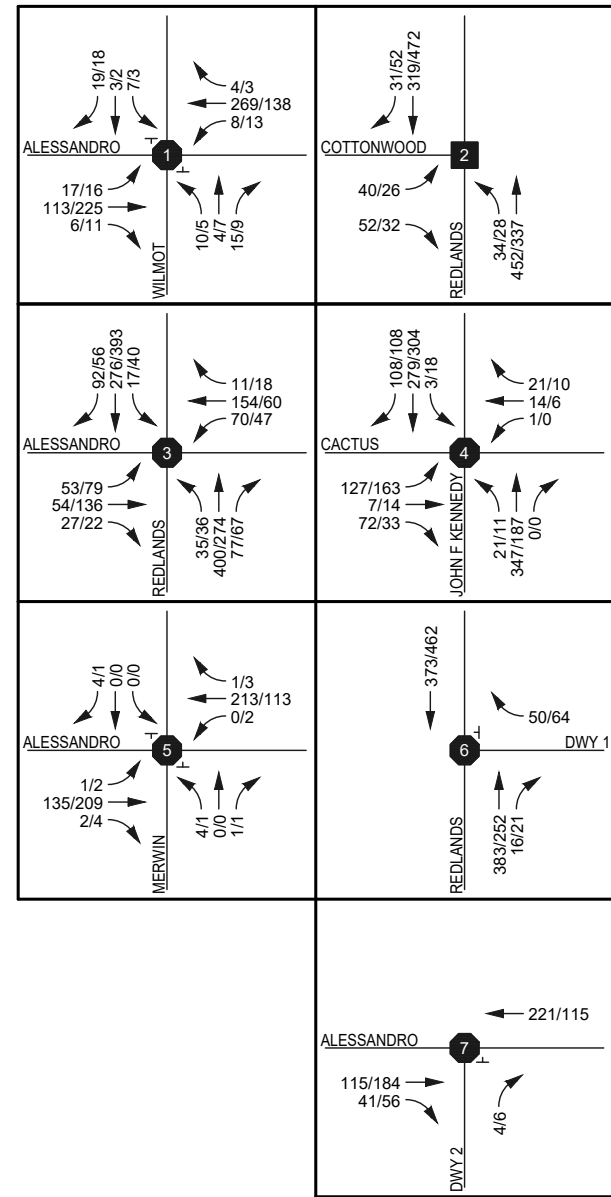
5.3 EP INTERSECTION LEVEL OF SERVICE ANALYSIS

EP conditions AM and PM peak hour intersection analysis is shown in **Table 10**. Calculations are based on the existing geometrics at the study area intersections as shown in **Exhibit 3**. HCM analysis sheets are provided in **Appendix C**.



Legend:

- XX/XX AM/PM Peak Hour Volumes
- X,XXX Average Daily Traffic Volume
- Project Site



Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)



Exhibit 8: Existing Plus Project AM/PM Peak Hour Volumes

HDI-19-002: Redlands Alessandro Commercial Plaza Traffic Impact Analysis



Table 10:
Intersection Analysis – EP Conditions

Intersection	Control Type	Peak Hour	Existing Conditions		EP Conditions			
			Delay ¹	LOS	Delay ¹	LOS	Change	Impact?
#1 - Wilmot St/Alessandro Blvd	TWSC	AM	10.8	B	11.1	B	0.3	No
		PM	11.7	B	11.8	B	0.1	No
#2 - Redlands Blvd/Cottonwood Ave	Signal	AM	6.7	A	6.9	A	0.2	No
		PM	5.4	A	5.8	A	0.4	No
#3 - Redlands Blvd/Alessandro Blvd	AWSC	AM	30.5	D	39.8	E	9.3	Yes
		PM	28.6	D	34.5	D	5.9	Yes
#4 - Redlands Blvd/Cactus Ave	AWSC	AM	14.4	B	14.6	B	0.2	No
		PM	12.7	B	12.9	B	0.2	No
#5 - Merwin St/Alessandro Blvd	TWSC	AM	11.0	B	11.0	B	0.0	No
		PM	10.3	B	10.3	B	0.0	No
#6 - Redlands Blvd/Dwy 1	OWSC	AM	-	-	9.9	A	9.9	No
		PM	-	-	9.5	A	9.5	No
#7 - Dwy 2/Alessandro Blvd	OWSC	AM	-	-	9.0	A	9.0	No
		PM	-	-	9.5	A	9.5	No

Note: AWSC = All-Way Stop-Control, TWSC = Two-Way Stop-Control, OWSC = One-Way Stop Control, Delay shown in seconds per vehicle.

1 = Per the Highway Capacity Manual 6th Edition, overall average delay and LOS are shown for signalized and all-way stop-controlled intersections. For intersections with one-or-two-way stop-control, the delay and LOS for the worst individual movement is shown.

As shown in **Table 10**, the study intersections are projected to continue to operate at an acceptable LOS during the AM and PM peak hours for *EP* conditions with the exception of the following intersection:

- #3 - Redlands Blvd/Alessandro Blvd (LOS E AM/LOS D PM Hour).

5.4 EP CONDITIONS ROADWAY SEGMENT LEVEL OF SERVICE ANALYSIS

Table 11 summarizes *EP* conditions roadway segment analysis based on the LOS “E” capacities provided in the *City of Moreno Valley Traffic Impact Analysis Preparation Guide*, previously summarized in **Table 3**.

Table 11:
Roadway Segment Analysis – EP Conditions

Roadway Segment	EP Cross Section	LOS E Capacity	EP		
			ADT	V/C	LOS
Alessandro Boulevard between Wilmot Street and Redlands Boulevard	2U	18,750	5,262	0.28	A

Note: V/C = volume to capacity ratio. 2U = Two-Lane Undivided roadway.

As shown in **Table 11**, the study roadway segment is projected to operate at LOS A for *EP* conditions which is acceptable at this location.

5.5 EP CONDITIONS SIGNAL WARRANT ANALYSIS

Traffic signal warrants for existing conditions have been prepared based on existing peak hour intersection volumes at the unsignalized study intersections. **Table 12** summarizes the results of the signal warrant analysis. Detailed warrant analysis sheets are contained in **Appendix D**.

Table 12:
Signal Warrant Analysis – EP Conditions

Intersection	Signal Warrants Met?	
	AM Peak Hour	PM Peak Hour
#1 - Wilmot St/Alessandro Blvd	No	No
#3 - Redlands Blvd/Alessandro Blvd	Yes	Yes
#4 - Redlands Blvd/Cactus Ave	No	No
#5 - Merwin St/Alessandro Blvd	No	No

Peak hour signal warrants are met at the following unsignalized study intersections:

- #3 – Redlands Blvd/Alessandro Blvd (AM/PM Peak Hour).

5.6 EP QUEUING ANALYSIS

A queueing analysis was conducted for *EP* conditions to determine 95th percentile queues. **Table 13** shows 95th percentile queue lengths for left and right-turn movements at the study intersections. As shown, all existing storage lengths can adequately accommodate 95th percentile queues. Queueing analysis sheets are contained in **Appendix E**.

Table 13:
Queueing Analysis - EP Conditions

Intersection	Movement	Storage Length (ft)	95 th Percentile Queue Length (ft)	
			AM Peak Hour	PM Peak Hour
#2 - Redlands Blvd/Cottonwood Ave	EBL	200	40	29
	NBL	130	37	31
	SBR	200	10	12
#3 - Redlands Blvd/Alessandro Blvd	EBR	65	25	25
	NBR	135	25	25
#4 - Redlands Blvd/Cactus Ave	EBR	100 ¹	25	25
	SBR	100 ¹	25	25

1 = Defacto right turn lane.

5.7 EP RECOMMENDED IMPROVEMENTS

The following improvements are recommended for *EP* conditions.

EP Recommended Improvement (EP-1): Redlands Blvd/Alessandro Blvd – Improve intersection to include a northbound left turn lane and a southbound left turn lane. Signalize existing intersection to include northbound and southbound protected left turn lanes.

Table 14 shows *EP* level of service at the intersection with the recommended improvements.

Table 14:
Intersection Analysis – EP Conditions with Recommended Improvements

Intersection	Control Type	Peak Hour	Existing Conditions		EP Conditions		EP With Recommended Improvements	
			Delay ¹	LOS	Delay ¹	LOS	Delay ¹	LOS
#3 - Redlands Blvd/Alessandro Blvd	AWSC	AM	30.5	D	39.8	E	11.3	B
		PM	28.6	D	34.5	D	11.3	B

Note: AWSC = All-Way Stop-Control, TWSC = Two-Way Stop Control, OWSC = One-Way Stop Control, Delay shown in seconds per vehicle.
 1 = Per the Highway Capacity Manual 6th Edition, overall average delay and LOS are shown for signalized and all-way stop-controlled intersections. For intersections with one-or-two-way stop-control, the delay and LOS for the worst individual movement is shown.

As shown in **Table 14**, with the recommended improvements, the intersection is projected to operate at an acceptable LOS for improved *EP* conditions.

6.0 EXISTING PLUS AMBIENT PLUS CUMULATIVE CONDITIONS (EAC)

Existing plus ambient plus cumulative (EAC) conditions analysis is intended to identify baseline conditions in the near-term without the proposed project.

6.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for the *existing plus ambient plus cumulative* scenario are consistent with those previously shown in **Exhibit 3**.

6.2 EAC TRAFFIC VOLUMES

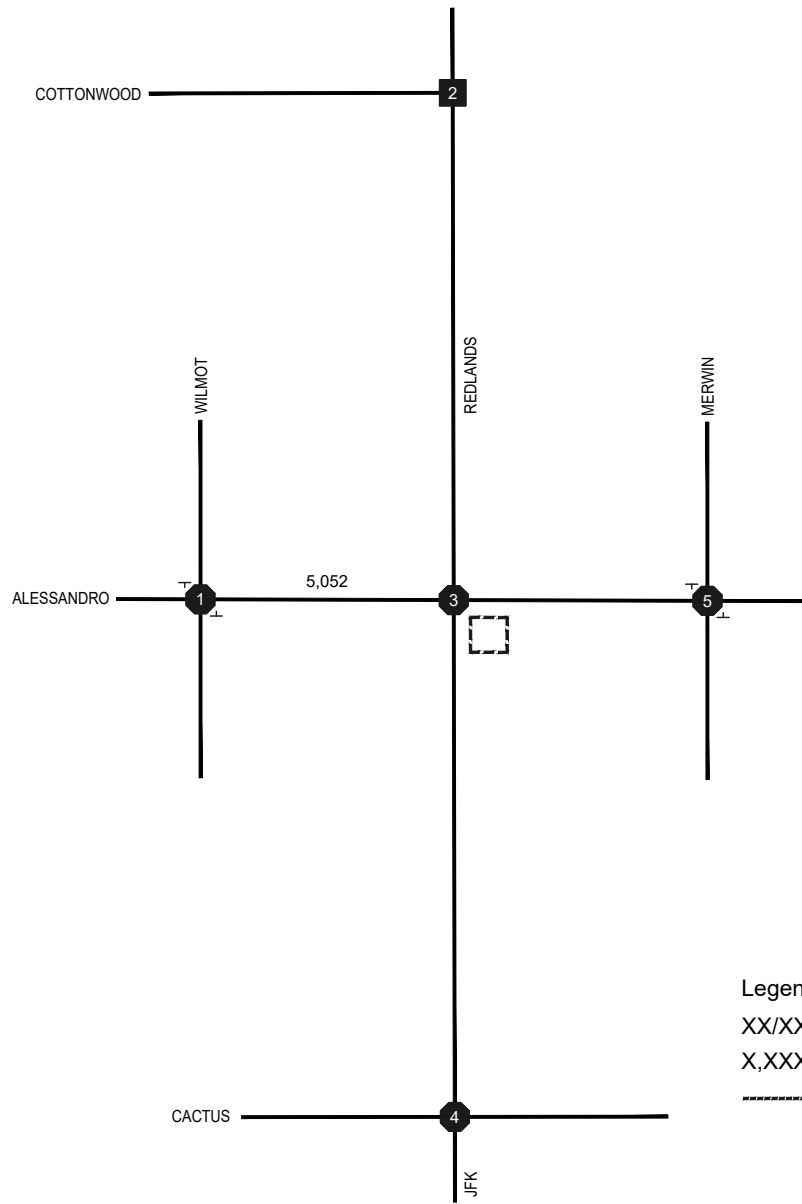
EAC volumes include background traffic plus the addition of the traffic projected to be generated by cumulative projects. Since the proposed project is expected to be built and generating trips in 2024, *EAC* volumes include a growth rate of 2% per year for five years, applied to existing volumes.

$EAC \text{ Volumes} = (\text{Existing (2019) Counts} * 1.02^5) + \text{Cumulative Traffic}$

Exhibit 9 shows *EAC* AM and PM peak hour volumes at the study intersections.

6.3 EAC INTERSECTION LEVEL OF SERVICE ANALYSIS

EAC conditions AM and PM peak hour intersection analysis is shown in **Table 15**. Calculations are based on the existing geometrics at the study area intersections as shown in **Exhibit 3**. HCM analysis sheets are provided in **Appendix C**.



Legend:

- XX/XX AM/PM Peak Hour Volumes
- X,XXX Average Daily Traffic Volume
- Project Site

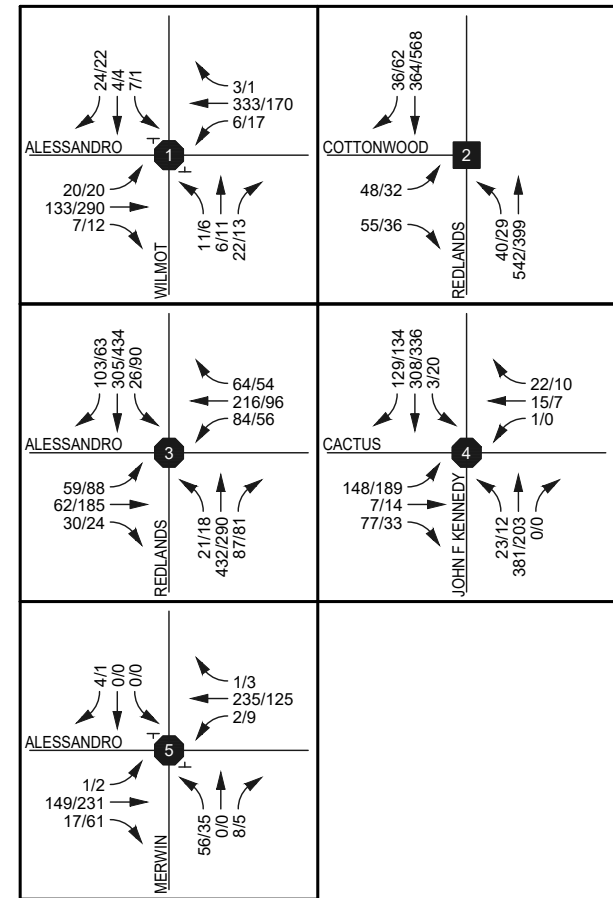


Exhibit 9: Existing Plus Ambient Plus Cumulative Conditions AM/PM Peak Hour Volumes

HDI-19-002: Redlands Alessandro Commercial Plaza Traffic Impact Analysis



Table 15:
Intersection Analysis – EAC Conditions

Intersection	Control Type	Peak Hour	EAC Conditions	
			Delay ¹	LOS
#1 - Wilmot St/Alessandro Blvd	TWSC	AM	11.8	B
		PM	13.3	B
#2 - Redlands Blvd/Cottonwood Ave	Signal	AM	7.2	A
		PM	6.2	A
#3 - Redlands Blvd/Alessandro Blvd	AWSC	AM	84.5	F
		PM	91.5	F
#4 - Redlands Blvd/Cactus Ave	AWSC	AM	17.3	C
		PM	14.6	B
#5 - Merwin St/Alessandro Blvd	TWSC	AM	12.6	B
		PM	12.3	B

Note: AWSC = All-Way Stop-Control, TWSC = Two-Way Stop-Control, Delay shown in seconds per vehicle.

1 = Per the Highway Capacity Manual 6th Edition, overall average delay and LOS are shown for signalized and all-way stop-controlled intersections. For intersections with one-or-two-way stop-control, the delay and LOS for the worst individual movement is shown.

As shown in **Table 15**, the study intersections are projected to continue to operate at an acceptable LOS during the AM and PM peak hours for *EAC* conditions with the exception of the following intersection:

- #3 - Redlands Blvd/Alessandro Blvd (LOS F AM/PM Hour).

6.4 EAC CONDITIONS ROADWAY SEGMENT LEVEL OF SERVICE ANALYSIS

Table 16 summarizes *EAC* conditions roadway segment analysis based on the LOS “E” capacities provided in the *City of Moreno Valley Traffic Impact Analysis Preparation Guide*, previously summarized in **Table 3**.

Table 16:
Roadway Segment Analysis – EAC Conditions

Roadway Segment	EAC Cross Section	LOS E Capacity	EAC		
			ADT	V/C	LOS
Alessandro Boulevard between Wilmot Street and Redlands Boulevard	2U	18,750	5,052	0.27	A

Note: V/C = volume to capacity ratio. 2U = Two-Lane Undivided roadway.

As shown in **Table 16**, the study roadway segment is projected to operate at LOS C for *EAC* conditions which is acceptable at this location.

6.5 EAC CONDITIONS SIGNAL WARRANT ANALYSIS

Traffic signal warrants for existing conditions have been prepared based on existing peak hour intersection volumes at the unsignalized study intersections. **Table 17** summarizes the results of the signal warrant analysis. Detailed warrant analysis sheets are contained in **Appendix D**.

Table 17:
Signal Warrant Analysis - EAC Conditions

Intersection	Signal Warrants Met?	
	AM Peak Hour	PM Peak Hour
#1 - Wilmot St/Alessandro Blvd	No	No
#3 - Redlands Blvd/Alessandro Blvd	Yes	Yes
#4 - Redlands Blvd/Cactus Ave	Yes	No
#5 - Merwin St/Alessandro Blvd	No	No

Peak hour signal warrants are met at the following unsignalized study intersections:

- #3 – Redlands Blvd/Alessandro Blvd (AM/PM Peak Hour);and
- #4 – Redlands Blvd/Alessandro Blvd (AM Peak Hour).

7.0 EXISTING PLUS AMBIENT PLUS CUMULATIVE PLUS PROJECT CONDITIONS

Existing plus ambient plus cumulative plus project conditions (EACP) conditions analysis is intended to identify the project-related cumulative impacts on the planned circulation system.

7.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for the *EACP* scenario are consistent with those previously shown in **Exhibit 3** and do not assume recommended improvements identified in the *EACP* scenario.

7.2 EACP TRAFFIC VOLUMES

EACP volumes include background traffic plus the addition of the traffic projected to be generated by the proposed project and traffic projected to be generated by cumulative developments in the vicinity of the proposed project. Cumulative developments are projects which are in various stages of planning, entitlement and construction. Since the proposed project is expected to be built and generating trips in 2024, *EACP* volumes include an ambient growth rate of 2% per year for five year, applied to existing volumes.

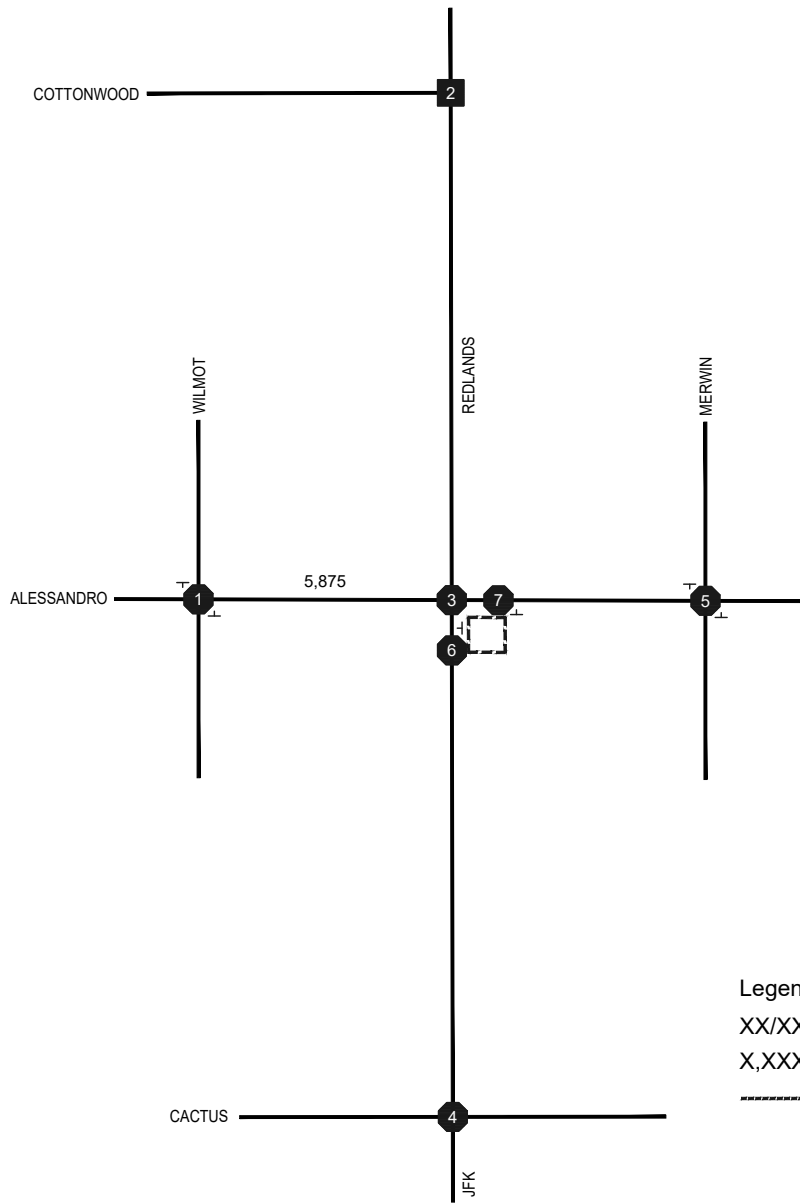
EACP Volumes = (Existing (2019) Counts * 1.02⁵) + Cumulative Projects Traffic + Project Traffic

The cumulative projects were previously discussed in *Section 4.6 Cumulative Projects Traffic*.

Exhibit 10 shows *EACP* AM and PM peak hour volumes at the study intersections.

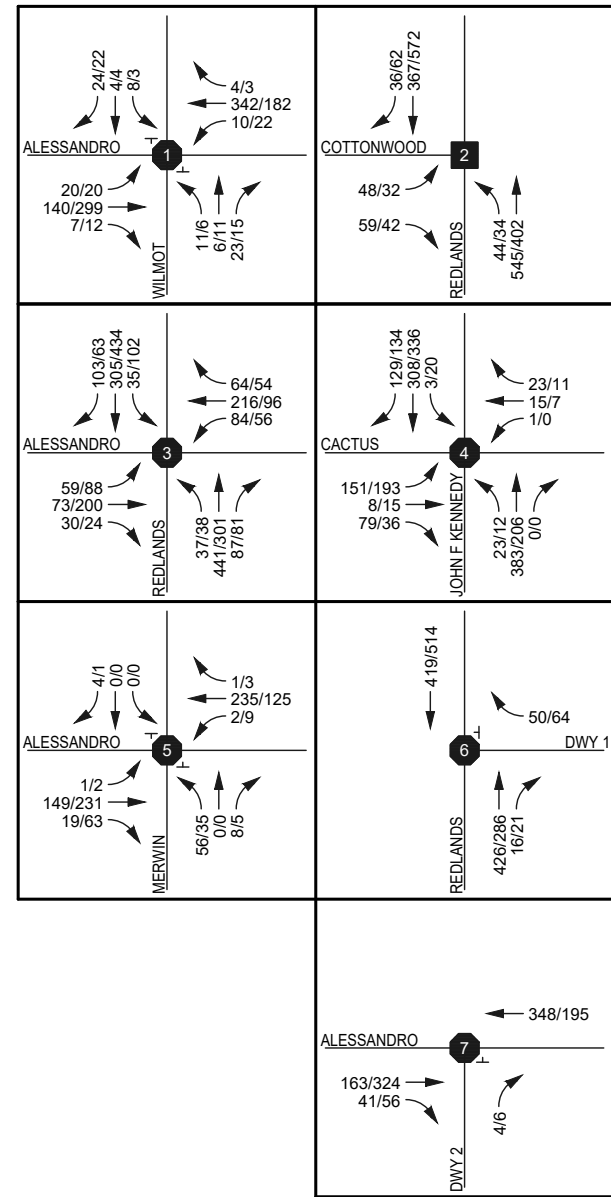
7.3 EACP CONDITIONS INTERSECTION LEVEL OF SERVICE ANALYSIS

EACP conditions AM and PM peak hour intersection analysis is shown in **Table 18**. HCM analysis sheets are provided in **Appendix C**.



Legend:

- XX/XX AM/PM Peak Hour Volumes
- X,XXX Average Daily Traffic Volume
- Project Site



Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)



Exhibit 10: Existing Plus Ambient Plus Cumulative (2024) Plus Project Conditions AM/PM Peak Hour Volumes

HDI-19-002: Redlands Alessandro Commercial Plaza Traffic Impact Analysis



Table 18:
Intersection Analysis – EACP Conditions

Intersection	Control Type	Peak Hour	EAC Conditions		EACP Conditions			
			Delay ¹	LOS	Delay ¹	LOS	Change	Impact?
#1 - Wilmot St/Alessandro Blvd	TWSC	AM	11.8	B	12.1	B	0.8	No
		PM	13.3	B	13.6	B	0.6	No
#2 - Redlands Blvd/Cottonwood Ave	Signal	AM	7.2	A	7.4	A	0.5	No
		PM	6.2	A	6.6	A	0.8	No
#3 - Redlands Blvd/Alessandro Blvd	AWSC	AM	84.5	F	99.2	F	29.1	Yes
		PM	91.5	F	105.3	F	30.7	Yes
#4 - Redlands Blvd/Cactus Ave	AWSC	AM	17.3	C	17.5	C	0.3	No
		PM	14.6	B	14.8	C	0.3	No
#5 - Merwin St/Alessandro Blvd	TWSC	AM	12.6	B	12.6	B	0.1	No
		PM	12.3	B	12.3	B	0.0	No
#6 - Redlands Blvd/Dwy 1	OWSC	AM	-	-	10.1	B	10.1	No
		PM	-	-	9.6	A	9.7	No
#7 - Dwy 2/Alessandro Blvd	OWSC	AM	-	-	9.3	A	9.4	No
		PM	-	-	10.5	B	10.7	No

Note: AWSC = All-Way Stop-Control, TWSC = Two-Way Stop-Control, OWSC = One-Way Stop Control, Delay shown in seconds per vehicle.

1 = Per the Highway Capacity Manual 6th Edition, overall average delay and LOS are shown for signalized and all-way stop-controlled intersections. For intersections with one-or-two-way stop-control, the delay and LOS for the worst individual movement is shown.

As shown in **Table 18**, the study intersections are projected to continue to operate at an acceptable LOS during the AM and PM peak hours for *EACP* conditions with the exception of the following intersection:

- #3 - Redlands Blvd/Alessandro Blvd (LOS F AM/PM Hour).

7.4 EACP CONDITIONS ROADWAY SEGMENT LEVEL OF SERVICE ANALYSIS

Table 19 summarizes *EAC* conditions roadway segment analysis based on the LOS “E” capacities provided in the *City of Moreno Valley Traffic Impact Analysis Preparation Guide*, previously summarized in **Table 3**.

Table 19:
Roadway Segment Analysis – EACP Conditions

Roadway Segment	EACP Cross Section	LOS E Capacity	EACP		
			ADT	V/C	LOS
Alessandro Boulevard between Wilmot Street and Redlands Boulevard	2U	18,750	5,875	0.31	A

Note: V/C = volume to capacity ratio. 2U = Two-Lane Undivided roadway

As shown in **Table 19**, the study roadway segment is projected to operate at LOS A for *EACP* conditions which is acceptable at this location.

7.5 EACP CONDITIONS SIGNAL WARRANT ANALYSIS

Traffic signal warrants for existing conditions have been prepared based on existing peak hour intersection volumes at the unsignalized study intersections. **Table 20** summarizes the results of the signal warrant analysis. Detailed warrant analysis sheets are contained in **Appendix D**.

Table 20:
Signal Warrant Analysis - EACP Conditions

Intersection	Signal Warrants Met?	
	AM Peak Hour	PM Peak Hour
#1 - Wilmot St/Alessandro Blvd	No	No
#3 - Redlands Blvd/Alessandro Blvd	Yes	Yes
#4 - Redlands Blvd/Cactus Ave	Yes	No
#5 - Merwin St/Alessandro Blvd	No	No

Peak hour signal warrants are met at the following unsignalized study intersections:

- #3 – Redlands Blvd/Alessandro Blvd (AM/PM Peak Hour); and
- #4 – Redlands Blvd/Alessandro Blvd (PM Peak Hour).

7.6 EACP QUEUING ANALYSIS

A queuing analysis was conducted for *EACP* conditions to determine 95th percentile queues. **Table 21** shows 95th percentile queue lengths for left and right-turn movements at the study intersections. As shown, all existing storage lengths can adequately accommodate 95th percentile queues. Queuing analysis sheets are contained in **Appendix E**.

Table 21:
Queuing Analysis - EACP Conditions

Intersection	Movement	Storage Length (ft)	95 th Percentile Queue Length (ft)	
			AM Peak Hour	PM Peak Hour
#2 - Redlands Blvd/Cottonwood Ave	EBL	200	46	34
	NBL	130	44	35
	SBR	200	11	13
#3 - Redlands Blvd/Alessandro Blvd	EBR	65	25	25
	NBR	135	25	25
#4 - Redlands Blvd/Cactus Ave	EBR	100 ¹	25	25
	SBR	100 ¹	25	25

1 = Defacto right turn lane.

7.7 EACP RECOMMENDED IMPROVEMENTS

The following improvements are recommended for *EACP* conditions.

EACP Recommended Improvement (EACP-1): Redlands Blvd/Alessandro Blvd – Improve intersection to include a northbound left turn lane and a southbound left turn lane. Signalize existing intersection to include northbound and southbound protected left turn lanes.

Table 22 shows *EACP* level of service at the intersection with the recommended improvements.

Table 22:
Intersection Analysis – EACP Conditions with Recommended Improvements

Intersection	Control Type	Peak Hour	EAC Conditions		EACP Conditions		EACP With Recommended Improvements	
			Delay ¹	LOS	Delay ¹	LOS	Delay ¹	LOS
#3 - Redlands Blvd/Alessandro Blvd	AWSC	AM	84.5	F	99.2	F	14.2	B
		PM	91.5	F	105.3	F	14.0	B

Note: AWSC = All-Way Stop-Control, TWSC = Two-Way Stop Control, OWSC = One-Way Stop Control, Delay shown in seconds per vehicle.
 1 = Per the Highway Capacity Manual 6th Edition, overall average delay and LOS are shown for signalized and all-way stop-controlled intersections. For intersections with one-or-two-way stop-control, the delay and LOS for the worst individual movement is shown.

As shown in **Table 22**, with the recommended improvements, the intersection is projected to operate at an acceptable LOS for improved *EACP* conditions.

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

8.0 LOCAL AND REGIONAL FUNDING MECHANISMS

The applicant will participate in the funding or construction of off-site improvements, including traffic signals that are needed to serve cumulative traffic conditions through the payment of the Transportation Uniform Mitigation Fees (TUMF), City of Moreno Valley Development Impact Fees (DIF), or a fair share contribution as directed by the City. These fees are collected as part of a funding mechanism aimed at ensuring that regional highways and arterial expansions keep pace with projected population increases. With regard to California Environmental Quality Act (CEQA) guidelines, the above fees will address the project's fair share toward infrastructure improvements designed to alleviate the cumulative impact.

8.1 TRANSPORTATION UNIFORM MITIGATION FEE (TUMF) PROGRAM

The TUMF program is administered by the Western Riverside Council of Governments (WRCOG) based upon a regional Nexus Study completed in early 2002 and updated in 2005, 2009, 2015 and 2017 to address major changes in right of way acquisition and improvement cost factors. The TUMF program identifies network backbone and local roadways that are needed to accommodate growth through 2035. The regional program was put into place to ensure that developments pay their fair share and that funding is in place for the construction of facilities needed to maintain an acceptable level of service for the transportation system. The TUMF is a regional mitigation fee program and is imposed and implemented in every jurisdiction in Western Riverside County.

TUMF fees are imposed on new residential, industrial and commercial development through application of the TUMF fee ordinance and fees are collected at the building or occupancy permit phase. The current fee for retail use is \$7.50 per square foot.

The proposed project will participate in the cost of off-site improvements through payment of TUMF fees based on the current fees at the time of construction of the proposed project.

8.2 CITY OF MORENO VALLEY DEVELOPMENT IMPACT FEE (DIF) PROGRAM

The proposed project is located within the City of Moreno Valley and will therefore be subject to the City's Development Impact Fees (DIF) and a fair share contribution to project impacts.

The proposed project will participate in the cost of off-site improvements through payment of City DIF fees based on the current fees at the time of construction of the proposed project.

8.3 FAIR SHARE CALCULATIONS

The project's contribution to the aforementioned development impact fee programs or as a fair share contribution towards a cumulatively impacted facility not found to be covered by a pre-existing fee program should be considered sufficient to address the project's fair share towards infrastructure improvements designed to alleviate cumulative project impacts. **Table 23** calculates the proposed project's fair share percentage at impacted intersections.

Table 23:
Fair Share Calculations

Intersection	Existing AM&PM Peak Hour Volume (A)	EACP AM&PM Peak Hour Volume (B)	Project AM&PM Peak Hour Volume (C)	Fair Share (C) / (B-A)
#3 - Redlands Blvd/Alessandro Blvd	2391	3071	103	15.15%

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Appendices

APPENDIX A

SCOPING AGREEMENT AND CITY OF MORENO VALLEY GENERAL PLAN ROADWAY
CLASSIFICATIONS AND CROSS SECTIONS



SCOPING AGREEMENT FOR TRAFFIC IMPACT ANALYSIS

Date: July 29, 2019

This letter acknowledges the City of Moreno Valley Transportation Engineering Division requirements for the traffic impact analysis of the following project.

Case No.	PEN19-0057 0058 0059 0060	
Project Name:	Redlands Alessandro Commercial Plaza	
Project Address:	14058 Redlands Boulevard, southeast corner of Alessandro Blvd and Redlands Blvd	
Project Description:	2,000 square feet commercial building, 2,500 square feet restaurant, 8-vehicle fueling position gas station	
Name:	<u>Consultant</u> TJW Engineering, Inc. Attn: David Chew	<u>Developer</u> Heady Design, Inc. Attn: Harry Heady
Address:	6 Venture Suite 225 Irvine, CA 92618	7365 Carnelian St Suite 233 Rancho Cucamonga, CA 91730
Telephone:	(949) 878-3509	

I. Background

The proposed project is located at 14058 Redlands Boulevard on the southeast corner of Alessandro Blvd and Redlands Blvd. The proposed project would consist of adding the following uses to the already existing *Farm Market*:

- 8 vehicle fueling position gas station;
- 2,000 square feet commercial use; and
- 2,500 square feet restaurant use.

The proposed project is anticipated to be built in one phase.

II. Trip Geographic Distribution and Assignment*

***See attached trip distribution diagram**

III. Site Trip Generation Forecast

A. Trip generation rate source: Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition, 2017) for the following land uses:

- Land Use 944 - Gasoline/Service Station
- Land Use 820 - Shopping Center
- Land Use 932 - High-Turnover (Sit-Down) Restaurant

B. AM Peak: 7:00-9:00 AM (based upon existing 24-hour traffic counts)

C. PM Peak: 4:00-6:00 PM (based upon existing 24-hour traffic counts)

D. Intersection and link acceptable Level of Service “D” for some intersections and links and Level of Service “C” for others based upon the current City policy. (Use Highway Capacity Manual - 6th Edition - operations procedures; parameters per County of Riverside Traffic Impact Analysis Guidelines.)

E. No credit is being applied to the existing land use (Farm Market). Existing traffic is assumed to be included in the existing volumes to be collected.

Proposed Use Rates*

Gasoline/Service Station (per vehicle fueling position):

Daily: 172.01 AM: 10.28 PM: 14.03

Shopping Center (per TSF):

Daily: 37.75 AM: 0.94 PM: 3.81

High-Turnover (Sit-Down) Restaurant (per TSF):

Daily: 112.18 AM: 9.94 PM: 7.37

Internal Trip Allowance: Yes _____ No Percentage _____

Pass-by Trip Allowance: Yes _____ No Percentage _____

Proposed Land Use ¹	Qty	Unit	Daily Trips (ADTs)		AM Peak Hour					PM Peak Hour				
			Rate	Volume	Rate	In:Out Split	Volume			Rate	In:Out Split	Volume		
							In	Out	Total			In	Out	Total
Gasoline/Service Station (944)	8.0	VFP	172.01	1,376	10.28	50:50	42	42	83	14.03	50:50	57	57	113
Shopping Center (820)	2.0	TSF	37.75	76	0.94	62:38	1	1	2	3.81	48:52	4	4	8
High-Turnover Restaurant (932)	2.5	TSF	112.18	280	9.94	55:45	14	11	25	9.77	62:38	16	10	25
Total				1,732			56	54	110			76	70	146

* **Source:** Rates from ITE Trip Generation (10th Edition, 2017)

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

IV. Specific Project Issues to be Analyzed

- A. The focus of this traffic study will be on addressing the adequacy of site access and identifying specific near-term and future circulation improvements required in the study area to maintain acceptable peak hour and daily levels of service (LOS).
- B. The traffic study shall address the project traffic impacts at all study intersections listed in Section VI and provide appropriate mitigation measures if applicable. Peak-hour traffic signal warrants shall be evaluated for all intersections that are not currently signalized.
- C. The traffic study shall include a section that discusses the difference in trip generation between the previous proposed or existing use and the proposed project if applicable.
- D. Using Synchro software, the traffic study shall provide a Queuing Analysis section to determine the 95th percentile queues and the minimum requirement of storage length for right and left-turn movements at all studied intersections based on forecasted E+P (V.C), Opening Year + Project (V.E) and GP Buildout (V.E if applicable) traffic volumes.

V. Study of Horizon Years

- A. Existing (2019)
- B. Existing (2019) + Project
- C. Existing + Ambient (existing to opening year***, assume growth rate of 2% per year) + Cumulative (2024)
- D. Existing + Ambient + Cumulative + Project (2024)

***Opening year should have five (5) year minimum horizon

VI. Facilities to be Studied

- A. Intersections
 - 1. Wilmot Street / Alessandro Boulevard
 - 2. Redlands Boulevard / Cottonwood Avenue
 - 3. Redlands Boulevard / Alessandro Boulevard
 - 4. Cactus Avenue / Redlands Boulevard-John F. Kennedy Drive
 - 5. Merwin Street / Alessandro Boulevard
- B. Roadway Segments
 - 1. Alessandro Boulevard between Redlands Boulevard and Wilmot Street

VII. Deliverables

- A. Draft traffic impact study (2 copies + pdf file on a CD or USB drive)
- B. Final traffic impact study (4 copies + pdf file on a CD or USB drive)

All draft and final traffic impact studies shall be delivered with the appropriate review fee to the Permit Technician, Land Development Division, Moreno Valley City Hall, and 14177 Frederick Street, Moreno Valley, CA 92552. Please contact the Land Development Division at 951-413-3110 prior to the delivery of the traffic study.

A signed copy of this Scoping Agreement must be included in the submitted draft and final traffic impact studies.

If you have any questions regarding this *Scoping Agreement*, please contact Eric Lewis at (951) 413-3140.

Recommended By:



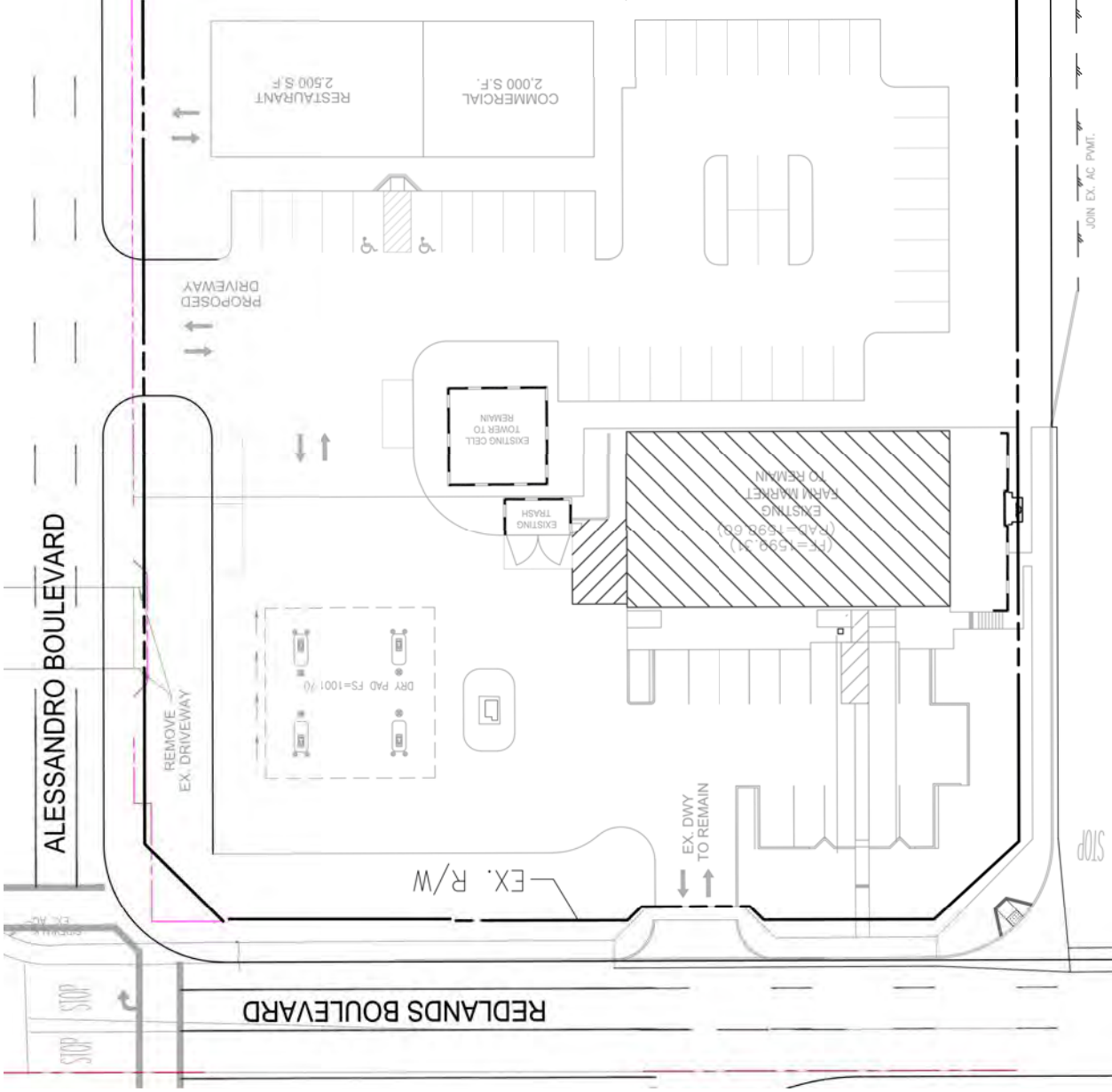
David Chew, PTP
TJW Engineering, Inc.

Approved By:



Eric Lewis, P.E., T.E.
City Traffic Engineer

NOTE: This scoping agreement was reviewed and approved based on the information submitted by *TJW Engineering, Inc.* on 07/29/2019. *TJW Engineering, Inc.* and the project applicant acknowledge that any changes to the project (zoning, project phasing, size, type of use, number or location of access points, etc.) after 07/29/2019 may require this scoping agreement to be revised and resubmitted for review and approval by the City of Moreno Valley.



Not to Scale

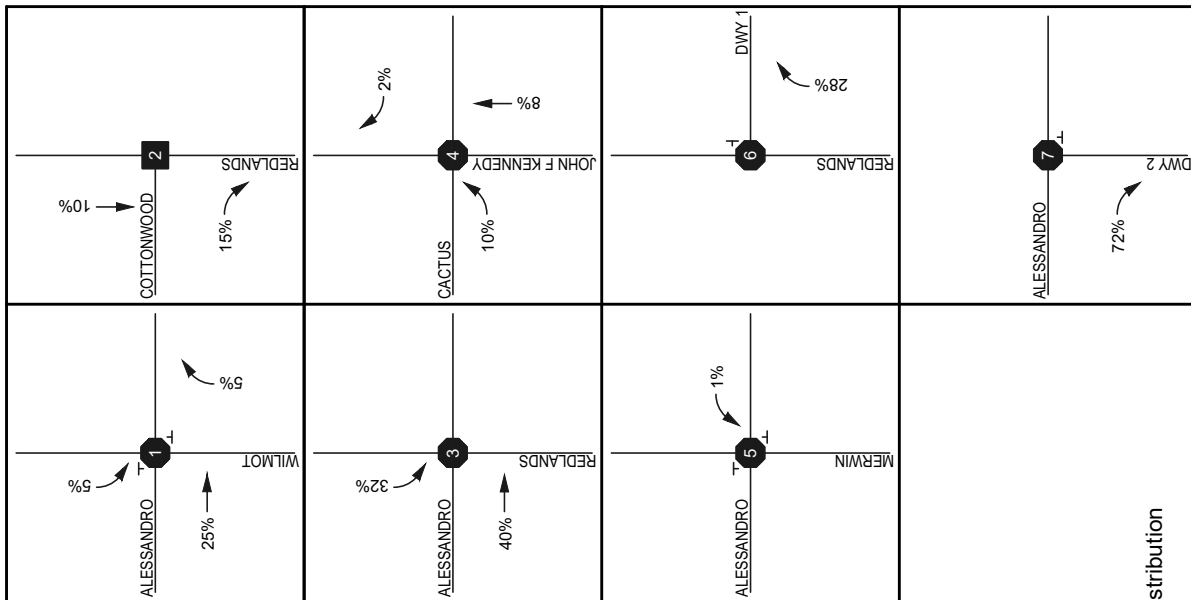
Exhibit 1: Proposed Project Site Plan

HDI-19-002: Redlands Alessandro Commercial Plaza Traffic Impact Analysis

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)



TJW ENGINEERING, INC.



Legend:
 XX% Percent Trip Distribution
 ----- Project Site

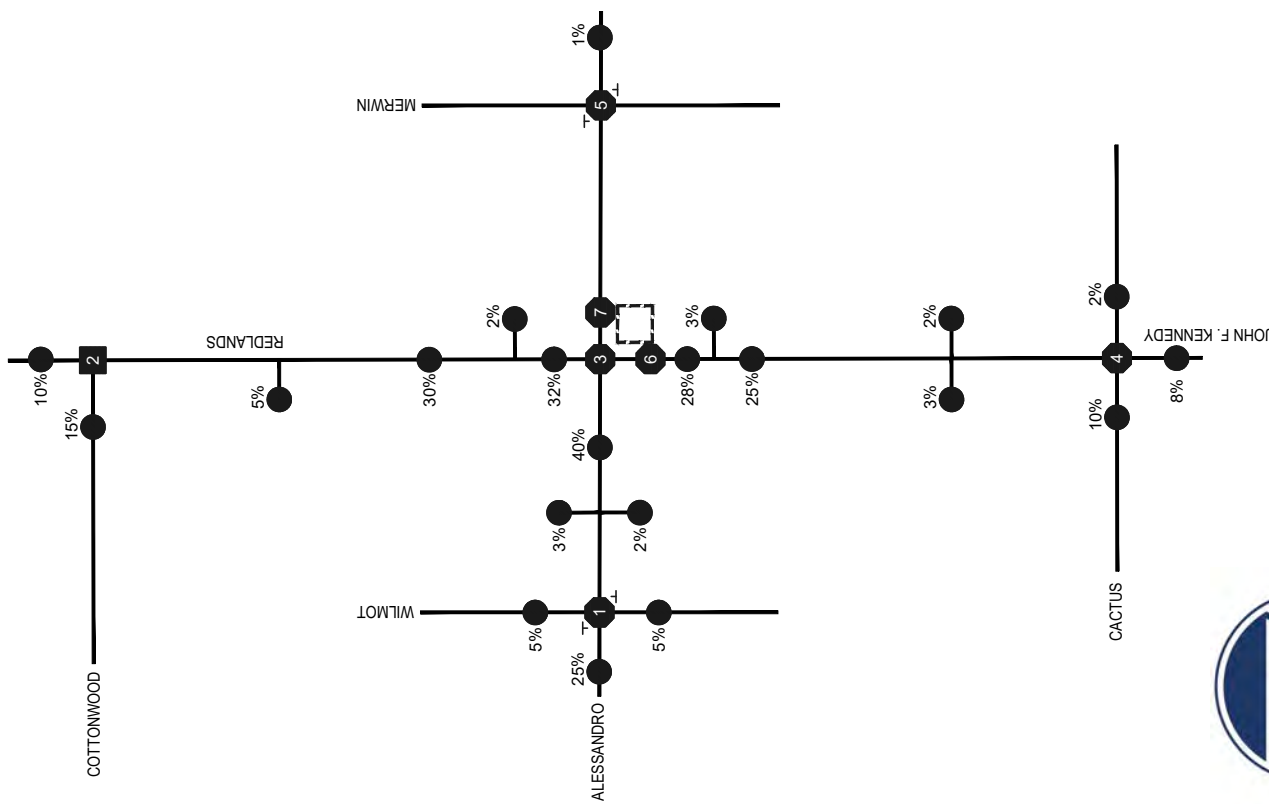


Exhibit 2A: Inbound Trip Distribution at Study Intersections

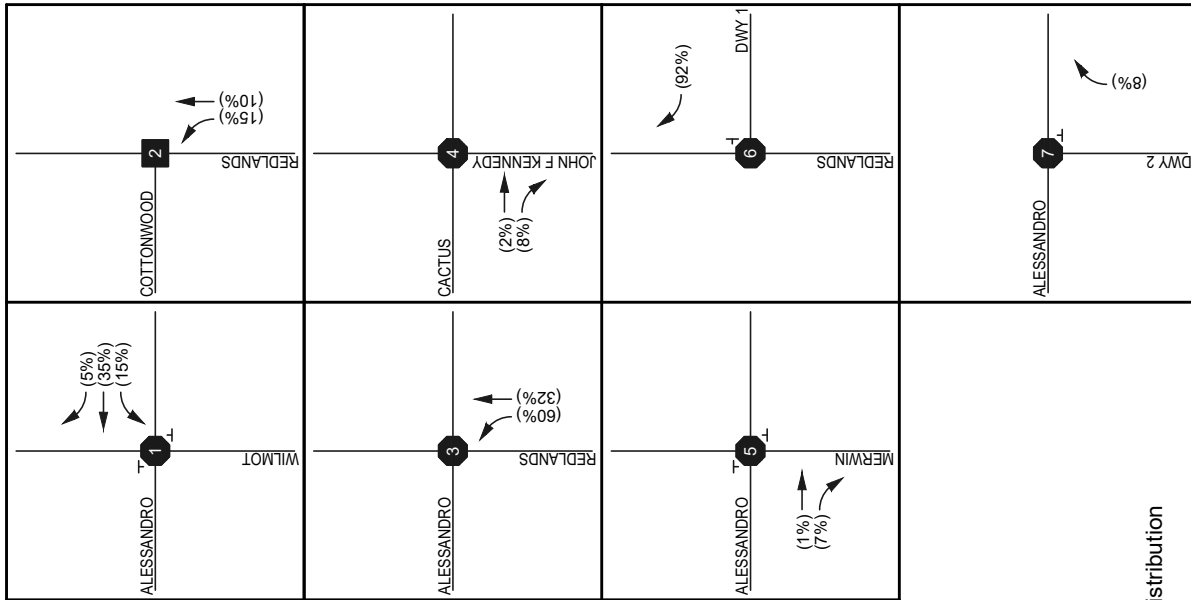
HDI-19-002: Redlands Alessandro Commercial Plaza Traffic Impact Analysis



TJW ENGINEERING, INC.



Not to Scale



Legend:
 XX% Percent Trip Distribution
 --- Project Site

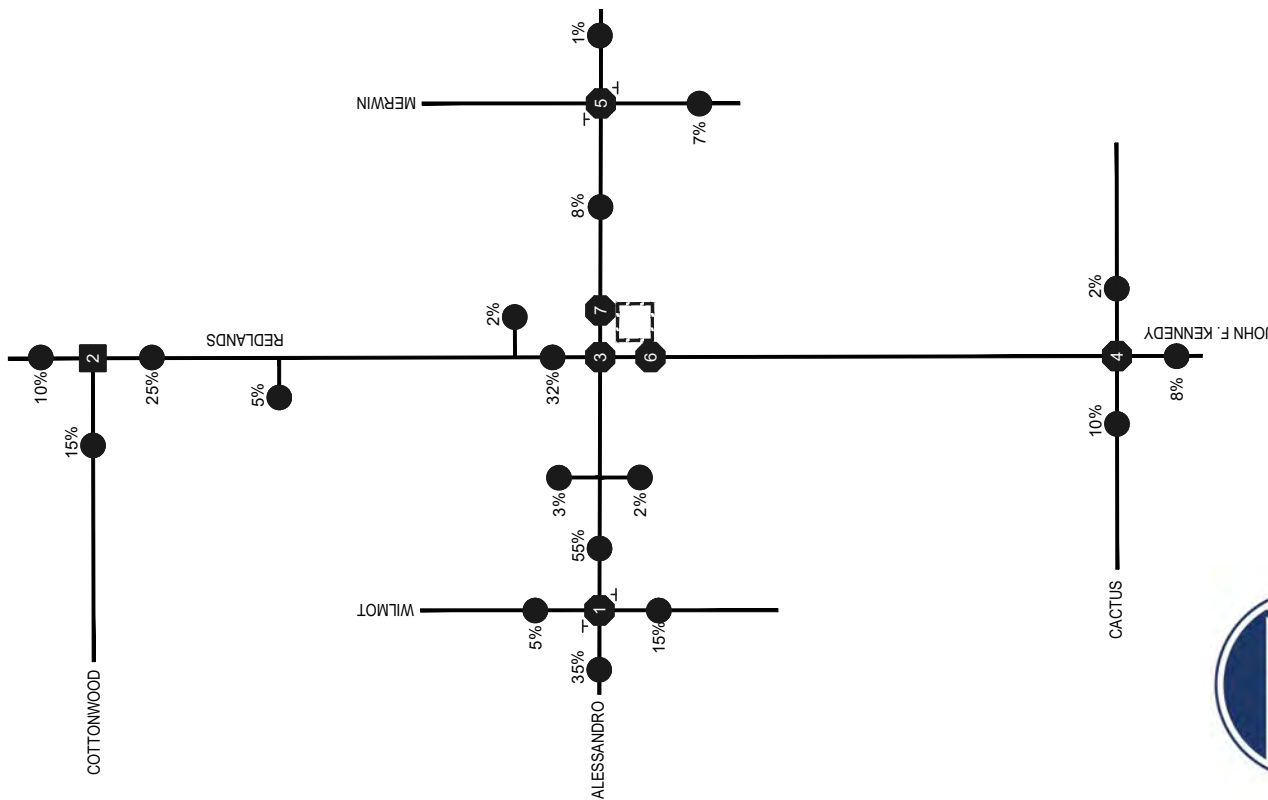


Exhibit 2B: Outbound Trip Distribution at Study Intersections

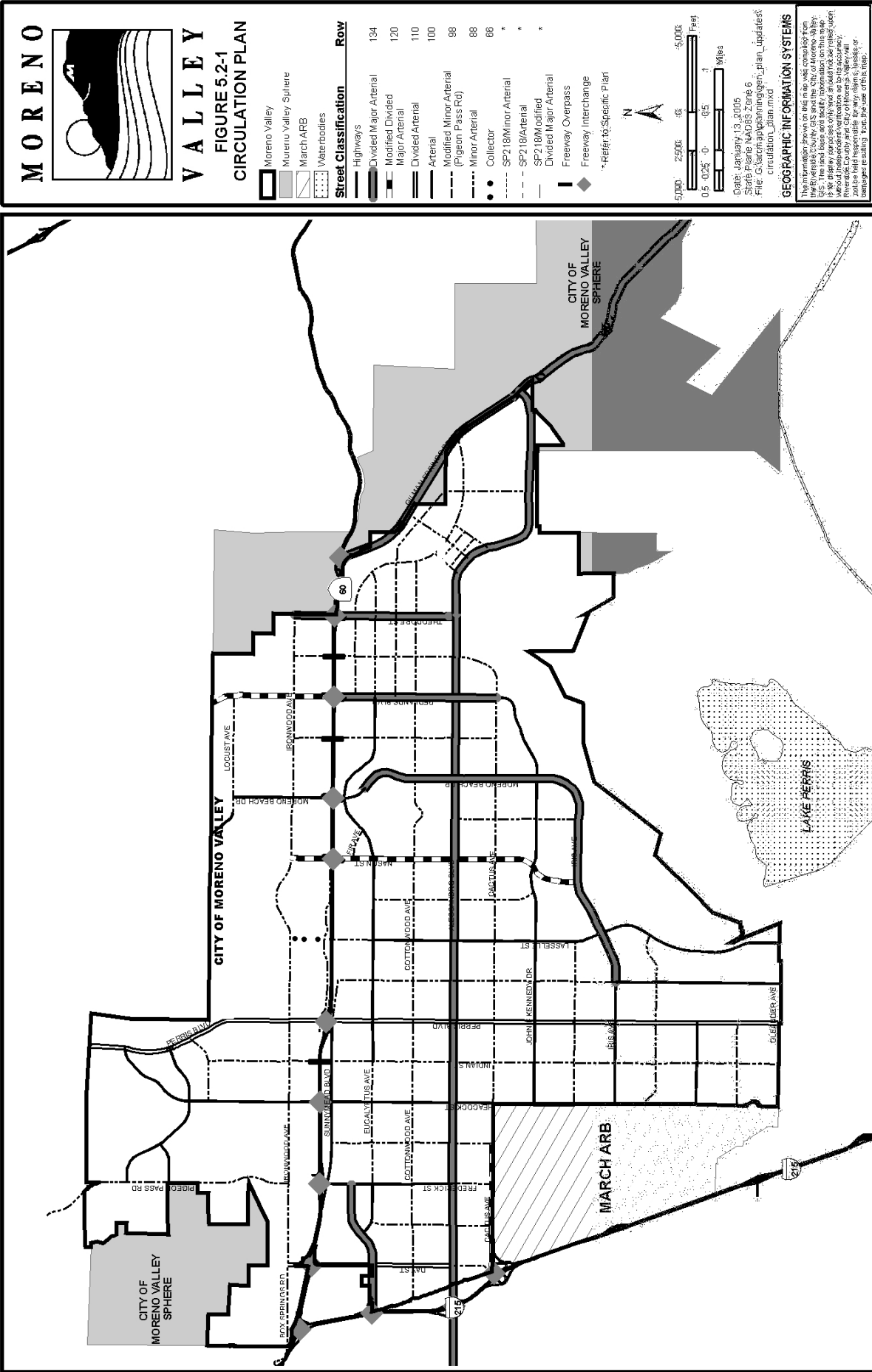
HDI-19-002: Redlands Alessandro Commercial Plaza Traffic Impact Analysis



TJW ENGINEERING, INC.

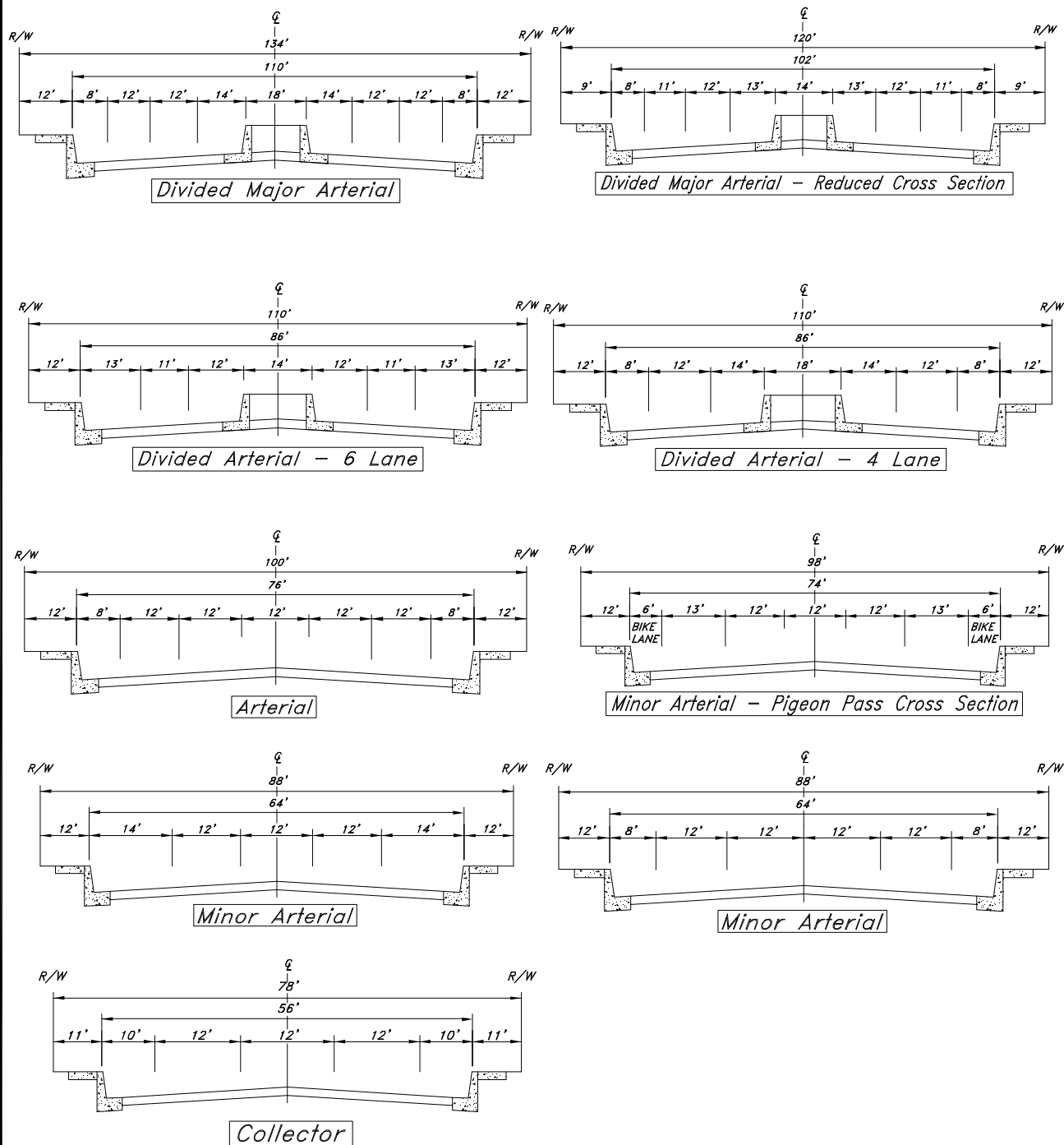


Not to Scale



PROPOSED CITY OF MORENO VALLEY GENERAL PLAN ROADWAY CROSS-SECTIONS

Figure 5.2-2

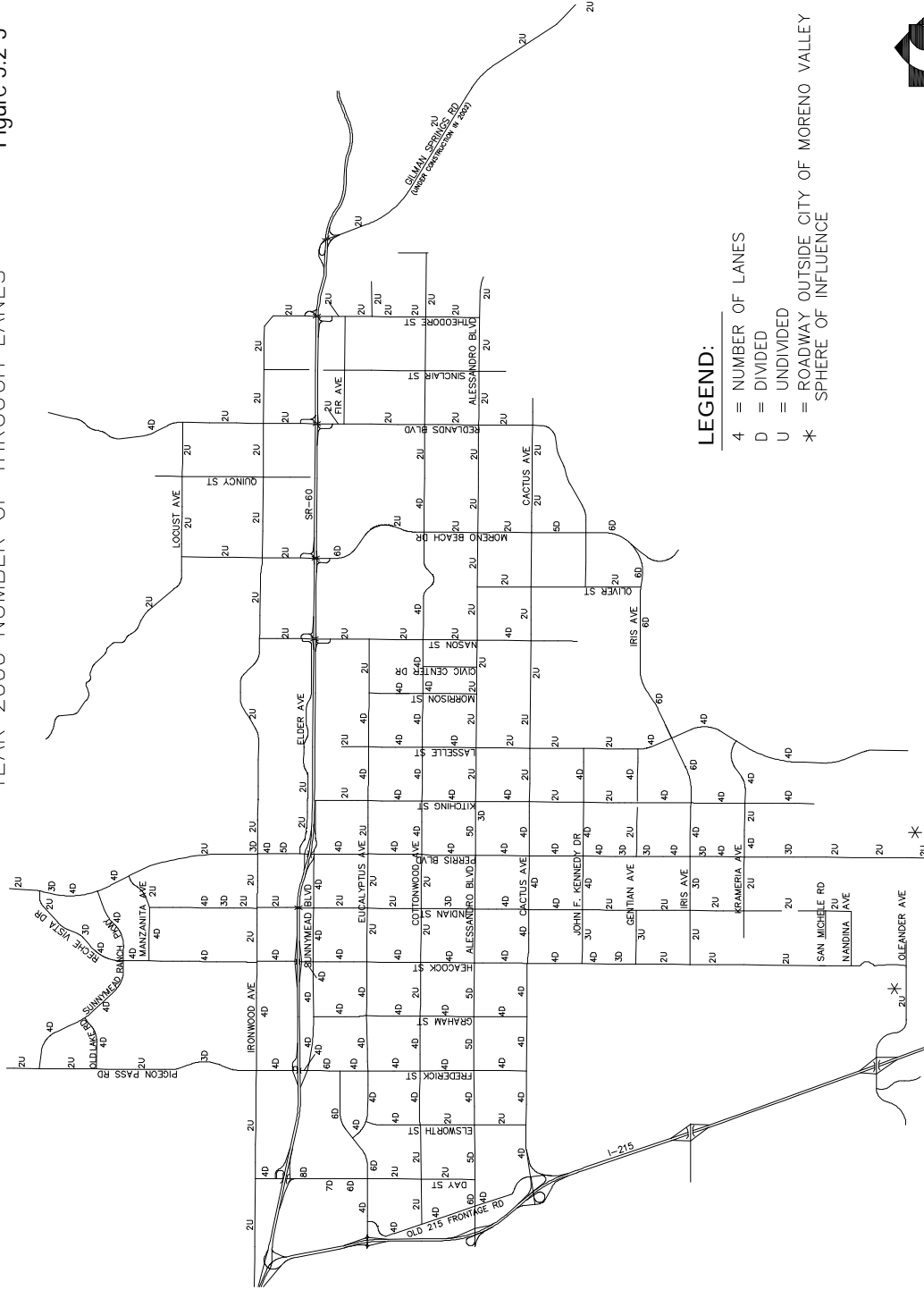


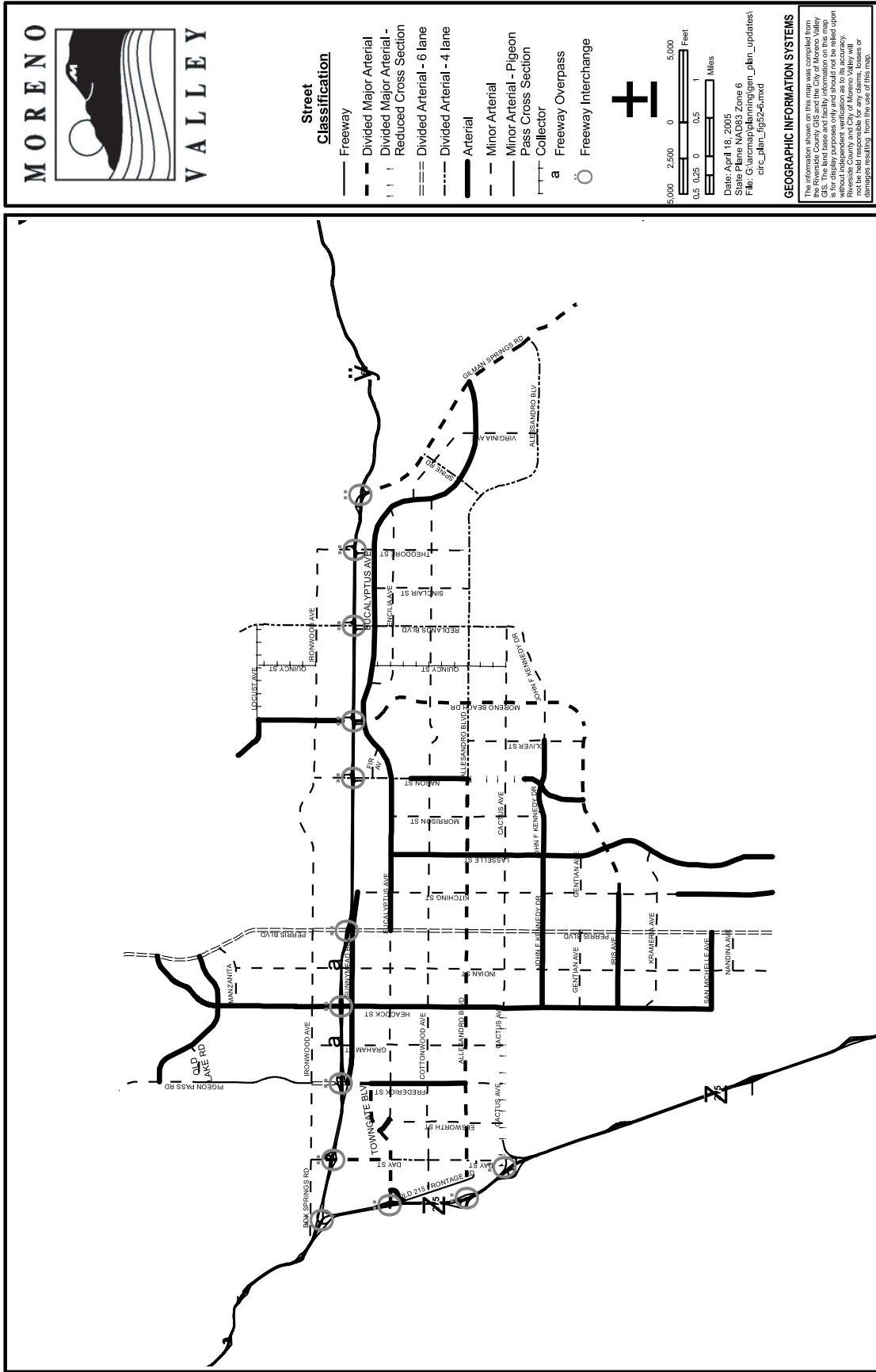
NOT TO SCALE

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Figure 5.2-3

YEAR 2000 NUMBER OF THROUGH LANES





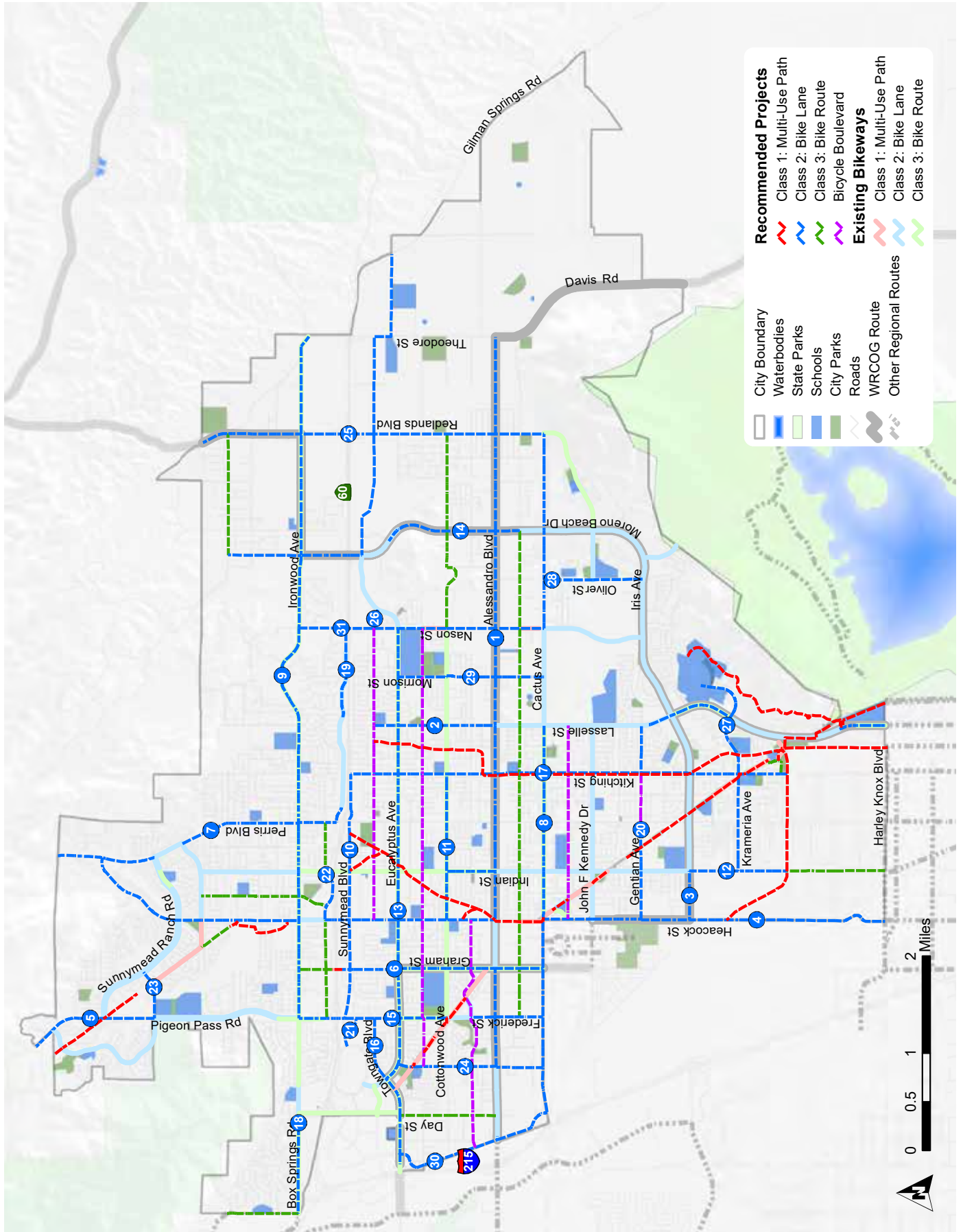
Source: Urban Crossroads, June 2004

Figure 5.2-6
 Proposed Circulation Plan
 City of Moreno Valley
 July 2006

Moreno Valley General Plan
 Final Program EIR

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

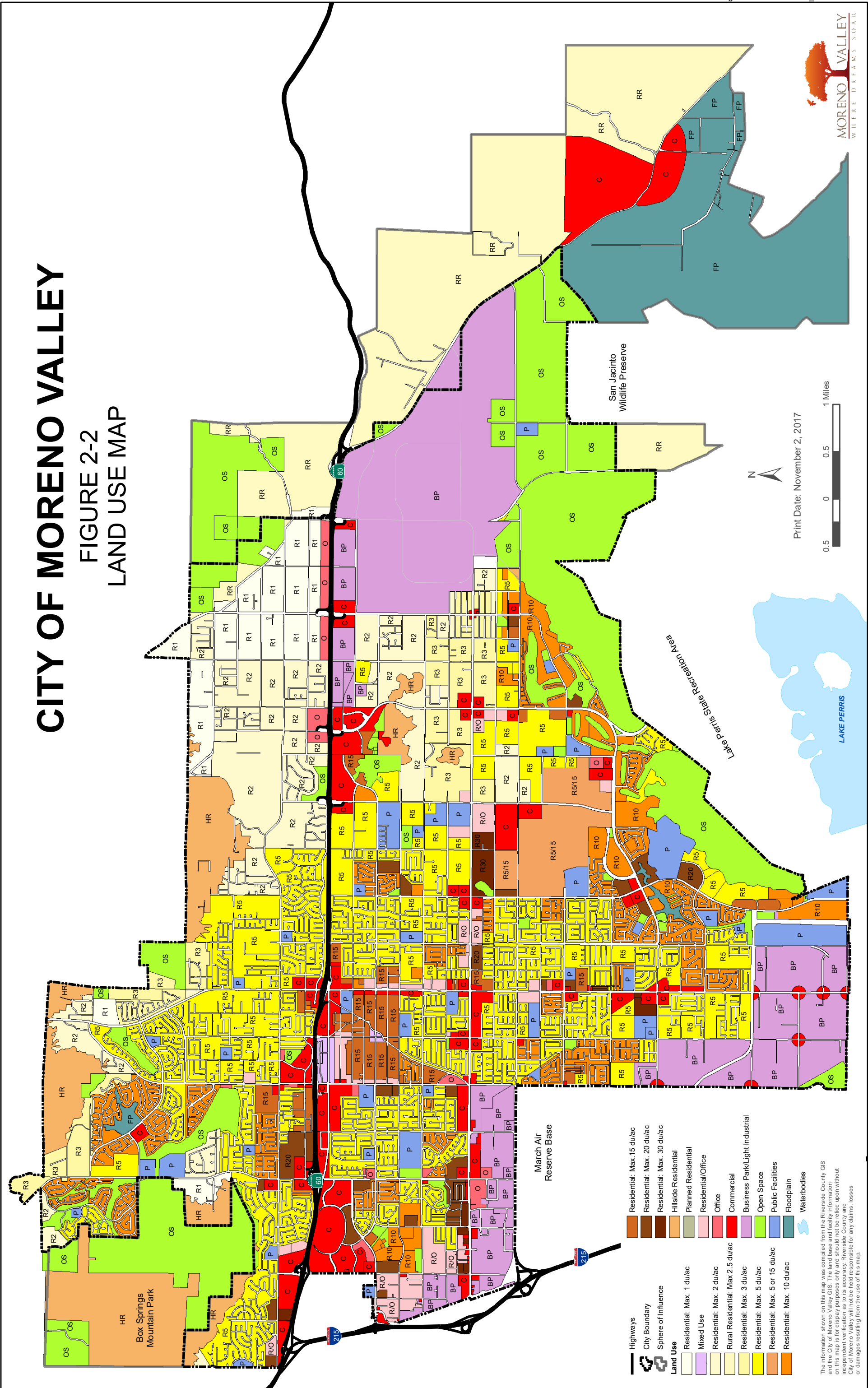
Figure 15: Recommended Class 2 Bicycle Lanes



Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

CITY OF MORENO VALLEY

FIGURE 2-2 LAND USE MAP



Print Date: November 2, 2017



Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

The information shown on this map was compiled from the Riverside County GIS and the City of Moreno Valley GIS. The land base and facility information on this map is for display purposes only and should not be relied upon without independent verification as to its accuracy. Riverside County and City of Moreno Valley will not be held responsible for any claims, losses or damages resulting from the use of this map.

APPENDIX B
EXISTING TRAFFIC COUNTS

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:
Tue, Aug 20, 19

LOCATION:
NORTH & SOUTH:
EAST & WEST:

Moreno Valley
Wilmot
Alessandro

PROJECT #:
LOCATION #:
CONTROL:

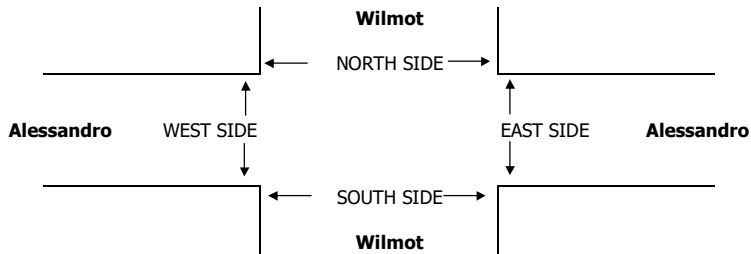
SC2111
1
STOP N/S

NOTES:	AM		▲	
	PM		N	
	MD	◀	W	E ▶
	OTHER		S	
	OTHER		▼	

Add U-Turns to Left Turns

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL
	Wilmot			Wilmot			Alessandro			Alessandro			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
7:00 AM	4	3	4	0	1	7	5	25	1	1	55	1	107
7:15 AM	1	1	3	1	2	5	4	22	0	1	64	1	105
7:30 AM	3	0	3	4	0	4	3	29	1	0	74	1	122
7:45 AM	2	0	4	1	0	3	5	30	4	2	67	0	118
8:00 AM	2	0	0	0	0	3	3	29	3	1	49	0	90
8:15 AM	3	1	4	1	0	1	4	35	2	2	45	1	99
8:30 AM	5	0	2	0	0	2	2	19	2	2	52	1	87
8:45 AM	1	1	0	0	1	3	1	16	2	3	36	0	64
VOLUMES	21	6	20	7	4	28	27	205	15	12	442	5	792
APPROACH %	45%	13%	43%	18%	10%	72%	11%	83%	6%	3%	96%	1%	
APP/DEPART	47	/	38	39	/	31	247	/	232	459	/	491	0
BEGIN PEAK HR	7:00 AM												
VOLUMES	10	4	14	6	3	19	17	106	6	4	260	3	452
APPROACH %	36%	14%	50%	21%	11%	68%	13%	82%	5%	1%	97%	1%	
PEAK HR FACTOR	0.636			0.875			0.827			0.890			0.926
APP/DEPART	28	/	24	28	/	13	129	/	126	267	/	289	0
4:00 PM	0	1	0	0	0	4	5	45	2	8	35	0	100
4:15 PM	4	1	3	0	0	1	7	52	1	3	25	1	98
4:30 PM	3	1	4	0	0	4	6	47	1	1	35	1	103
4:45 PM	0	2	3	0	2	8	1	49	2	2	28	0	97
5:00 PM	1	4	0	0	0	2	6	56	2	1	28	0	100
5:15 PM	1	0	4	0	0	3	4	55	2	4	26	0	99
5:30 PM	3	1	0	1	0	5	5	56	5	1	44	1	122
5:45 PM	0	2	0	0	0	4	4	40	1	1	33	1	86
VOLUMES	12	12	14	1	2	31	38	400	16	21	254	4	805
APPROACH %	32%	32%	37%	3%	6%	91%	8%	88%	4%	8%	91%	1%	
APP/DEPART	38	/	54	34	/	39	454	/	415	279	/	297	0
BEGIN PEAK HR	4:45 PM												
VOLUMES	5	7	7	1	2	18	16	216	11	8	126	1	418
APPROACH %	26%	37%	37%	5%	10%	86%	7%	89%	5%	6%	93%	1%	
PEAK HR FACTOR	0.950			0.525			0.920			0.734			0.857
APP/DEPART	19	/	24	21	/	21	243	/	224	135	/	149	0

U-TURNS				
NB	SB	EB	WB	
0	0	0	0	
0	0	0	0	
0	0	0	0	
0	0	0	0	
0	0	0	0	
0	0	0	0	
0	0	0	0	
0	0	0	0	
0	0	0	0	
0	0	0	0	
0	0	0	0	



Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:
Tue, Aug 20, 19

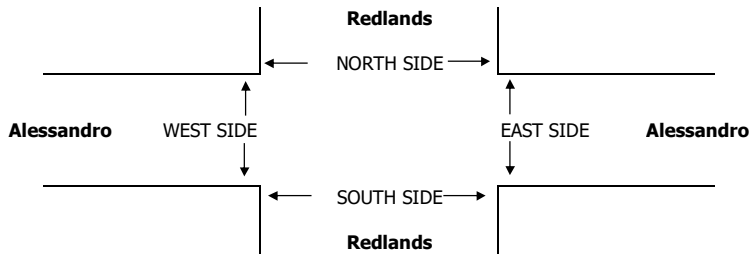
LOCATION:
NORTH & SOUTH: Moreno Valley
EAST & WEST: Redlands
Alessandro

PROJECT #: SC2111
LOCATION #: 3
CONTROL: STOP ALL

NOTES:	AM		▲	
	PM		N	
	MD	◀	W	E ▶
	OTHER		S	
	OTHER		▼	

Add U-Turns to Left Turns

LANES:	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL	U-TURNS			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR		NB	SB	EB	WB
7:00 AM	3	102	11	1	63	19	12	7	4	16	33	4	0	0	0	0	
7:15 AM	6	116	18	4	60	21	20	9	3	17	46	2	0	0	0	0	
7:30 AM	6	98	27	2	85	19	12	13	11	20	38	2	0	0	0	0	
7:45 AM	4	75	21	1	68	33	9	14	9	17	37	3	0	0	0	0	
8:00 AM	4	71	27	0	44	14	11	18	3	8	29	4	0	0	0	0	
8:15 AM	2	70	22	2	33	12	8	21	4	9	32	0	0	0	0	0	
8:30 AM	2	46	11	2	36	14	7	10	1	17	35	5	0	0	0	0	
8:45 AM	3	50	7	0	32	12	8	7	2	8	28	2	0	0	0	0	
VOLUMES	30	628	144	12	421	144	87	99	37	112	278	22	0	0	0	0	
APPROACH %	4%	78%	18%	2%	73%	25%	39%	44%	17%	27%	67%	5%	0	0	0	0	
APP/DEPART	802	/	737	577	/	570	223	/	255	412	/	452	0	0	0	0	
BEGIN PEAK HR	7:00 AM																
VOLUMES	19	391	77	8	276	92	53	43	27	70	154	11	1,221				
APPROACH %	4%	80%	16%	2%	73%	24%	43%	35%	22%	30%	66%	5%					
PEAK HR FACTOR	0.870			0.887			0.854			0.904			0.917				
APP/DEPART	487	/	455	376	/	373	123	/	128	235	/	265	0	0	0	0	
4:00 PM	1	69	11	5	102	15	15	27	2	10	16	4	0	0	0	0	
4:15 PM	1	65	9	5	90	13	22	25	4	9	11	5	0	0	0	0	
4:30 PM	4	59	14	3	77	15	26	28	3	11	19	2	0	0	0	0	
4:45 PM	0	75	19	6	94	15	20	22	5	7	15	2	0	0	0	0	
5:00 PM	4	70	16	10	90	10	12	47	4	14	12	4	0	0	0	0	
5:15 PM	5	59	15	4	101	14	30	19	7	12	18	8	0	0	0	0	
5:30 PM	7	59	17	8	108	17	17	33	6	14	15	4	0	0	0	0	
5:45 PM	3	55	8	4	87	14	14	20	5	10	21	5	0	0	0	0	
VOLUMES	25	511	109	45	749	113	156	221	36	87	127	34	2,213				
APPROACH %	4%	79%	17%	5%	83%	12%	38%	54%	9%	35%	51%	14%					
APP/DEPART	645	/	701	907	/	872	413	/	375	248	/	265	0	0	0	0	
BEGIN PEAK HR	4:45 PM																
VOLUMES	16	263	67	28	393	56	79	121	22	47	60	18	1,170				
APPROACH %	5%	76%	19%	6%	82%	12%	36%	55%	10%	38%	48%	14%					
PEAK HR FACTOR	0.920			0.897			0.881			0.822			0.959				
APP/DEPART	346	/	360	477	/	462	222	/	216	125	/	132	0	0	0	0	



Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:
Tue, Aug 20, 19

LOCATION:
NORTH & SOUTH: Moreno Valley
EAST & WEST: Redlands
Cactus

PROJECT #: SC2111
LOCATION #: 4
CONTROL: STOP ALL

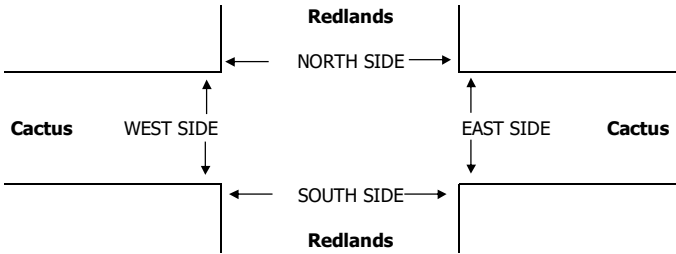
NOTES:	AM		▲	
	PM		N	
	MD	◀ W		E ▶
	OTHER		S	
	OTHER		▼	

Add U-Turns to Left Turn

LANES:	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL
	Redlands			Redlands			Cactus			Cactus			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
7:00 AM	1	84	0	1	53	28	29	4	3	0	3	2	208
7:15 AM	7	96	0	2	53	22	26	1	5	0	5	7	224
7:30 AM	5	87	0	0	81	25	42	1	23	1	5	6	276
7:45 AM	8	78	0	0	92	33	27	0	39	0	1	5	283
8:00 AM	10	60	0	2	38	22	33	1	4	0	3	2	175
8:15 AM	7	75	0	3	42	11	27	1	3	0	4	4	177
8:30 AM	4	42	0	1	42	11	22	3	1	0	2	2	130
8:45 AM	5	53	0	0	37	13	14	2	2	0	0	0	126
VOLUMES	47	575	0	9	438	165	220	13	80	1	23	28	1,599
APPROACH %	8%	92%	0%	1%	72%	27%	70%	4%	26%	2%	44%	54%	
APP/DEPART	622	/	823	612	/	520	313	/	22	52	/	234	0
BEGIN PEAK HR	7:00 AM												
VOLUMES	21	345	0	3	279	108	124	6	70	1	14	20	991
APPROACH %	6%	94%	0%	1%	72%	28%	62%	3%	35%	3%	40%	57%	
PEAK HR FACTOR	0.888			0.780			0.758			0.729			0.875
APP/DEPART	366	/	489	390	/	351	200	/	9	35	/	142	0
4:00 PM	2	48	0	3	71	27	24	2	3	0	1	4	185
4:15 PM	2	54	1	3	72	26	24	4	5	0	0	2	193
4:30 PM	2	39	0	5	67	28	38	2	6	1	4	1	193
4:45 PM	3	47	0	3	65	28	45	6	3	0	3	2	205
5:00 PM	5	52	0	2	76	33	39	2	9	0	1	2	221
5:15 PM	3	44	0	6	79	25	42	1	12	0	1	3	216
5:30 PM	0	41	0	7	84	22	33	4	6	0	1	2	200
5:45 PM	4	41	1	4	78	19	25	2	5	0	1	2	182
VOLUMES	21	366	2	33	592	208	270	23	49	1	12	18	1,595
APPROACH %	5%	94%	1%	4%	71%	25%	79%	7%	14%	3%	39%	58%	
APP/DEPART	389	/	654	833	/	642	342	/	58	31	/	241	0
BEGIN PEAK HR	4:45 PM												
VOLUMES	11	184	0	18	304	108	159	13	30	0	6	9	842
APPROACH %	6%	94%	0%	4%	71%	25%	79%	6%	15%	0%	40%	60%	
PEAK HR FACTOR	0.855			0.951			0.918			0.750			0.952
APP/DEPART	195	/	352	430	/	334	202	/	31	15	/	125	0

U-TURNS			
NB	SB	EB	WB
0	0	0	0
0	0	0	0
0	0	0	0
1	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
1	0	0	0

0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0



Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Tuesday, August 20, 2019

Location: Moreno Valley

PROJECT: SC2111

ADT Alessandro between Redlands and Wilmot.

Prepared by AimTD tel. 714 253 7888

AM Period	NB	SB	EB	WB	PM Period	NB	SB	EB	WB			
0:30			5	5	12:00			26	24			
0:15			2	3	12:15			21	27			
0:30			4	4	12:30			20	26			
0:45			3	14	3	15	29	28	95	44	121	216
1:00			0	4	13:00			35	31			
1:15			4	0	13:15			31	31			
1:30			3	6	13:30			36	25			
1:45			2	9	3	13	22	24	126	27	114	240
2:00			0	0	14:00			32	36			
2:15			3	0	14:15			42	34			
2:30			0	2	14:30			40	54			
2:45			2	5	0	2	7	52	166	33	157	323
3:00			2	3	15:00			53	23			
3:15			4	3	15:15			59	32			
3:30			6	0	15:30			50	34			
3:45			0	12	5	11	23	27	189	50	139	328
4:00			2	3	16:00			41	45			
4:15			9	6	16:15			54	27			
4:30			11	7	16:30			47	34			
4:45			16	38	14	30	68	59	201	32	138	339
5:00			10	14	17:00			55	31			
5:15			10	21	17:15			64	30			
5:30			11	26	17:30			51	44			
5:45			7	38	15	76	114	44	214	34	139	353
6:00			20	13	18:00			38	32			
6:15			27	30	18:15			40	30			
6:30			18	44	18:30			37	32			
6:45			27	92	43	130	222	32	147	30	124	271
7:00			24	53	19:00			31	20			
7:15			27	70	19:15			20	23			
7:30			38	67	19:30			32	25			
7:45			36	125	71	261	386	22	105	16	84	189
8:00			34	53	20:00			22	15			
8:15			39	45	20:15			23	14			
8:30			22	54	20:30			23	18			
8:45			15	110	42	194	304	23	91	20	67	158
9:00			33	36	21:00			13	13			
9:15			29	21	21:15			12	8			
9:30			21	27	21:30			15	18			
9:45			34	117	34	118	235	16	56	9	48	104
10:00			29	25	22:00			8	11			
10:15			20	11	22:15			8	4			
10:30			29	28	22:30			9	8			
10:45			18	96	40	104	200	11	36	5	28	64
11:00			26	18	23:00			8	9			
11:15			23	23	23:15			5	3			
11:30			27	18	23:30			7	8			
11:45			39	115	21	80	195	5	25	4	24	49
Total Vol.				771	1034	1805			1451	1183	2634	

Daily Totals				
NB	SB	EB	WB	Combined
		2222	2217	4439

Split %	AM				PM				
	42.7%	57.3%	40.7%		55.1%	44.9%	59.3%		
Peak Hour	0:30	0:30	7:30	7:00	7:15		16:45	15:15	16:45
Volume			147	261	396		229	161	366
P.H.F.			0.94	0.92	0.93		0.89	0.81	0.96

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

APPENDIX C

HCM ANALYSIS WORKSHEETS

EXISTING CONDITIONS

Redlands Alessandro TIA
1: Wilmot St & Alessandro Bl

Existing Conditions AM Peak Hour
HCM 6th TWSC

Intersection												
Int Delay, s/veh	1.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	17	106	6	4	260	3	10	4	14	6	3	19
Future Vol, veh/h	17	106	6	4	260	3	10	4	14	6	3	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	18	114	6	4	280	3	11	4	15	6	3	20

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	283	0	0	120	0	0	454	444	117	453	446	282
Stage 1	-	-	-	-	-	-	153	153	-	290	290	-
Stage 2	-	-	-	-	-	-	301	291	-	163	156	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1279	-	-	1468	-	-	516	508	935	517	507	757
Stage 1	-	-	-	-	-	-	849	771	-	718	672	-
Stage 2	-	-	-	-	-	-	708	672	-	839	769	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1279	-	-	1468	-	-	493	499	935	498	498	757
Mov Cap-2 Maneuver	-	-	-	-	-	-	493	499	-	498	498	-
Stage 1	-	-	-	-	-	-	836	759	-	707	670	-
Stage 2	-	-	-	-	-	-	684	670	-	809	757	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1			0.1			10.8			10.8		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	647	1279	-	-	1468	-	-	649
HCM Lane V/C Ratio	0.047	0.014	-	-	0.003	-	-	0.046
HCM Control Delay (s)	10.8	7.9	0	-	7.5	0	-	10.8
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
2: Redlands Bl & Cottonwood Av

Existing Conditions AM Peak Hour
Timings



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗	↖	↑	↑	↗
Traffic Volume (vph)	40	48	30	449	316	31
Future Volume (vph)	40	48	30	449	316	31
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	22.5	22.5	11.5	22.5	36.5	36.5
Total Split (s)	23.0	23.0	12.0	52.0	40.0	40.0
Total Split (%)	30.7%	30.7%	16.0%	69.3%	53.3%	53.3%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	Max	Max	Max
Act Effect Green (s)	7.6	7.6	7.3	52.8	48.3	48.3
Actuated g/C Ratio	0.12	0.12	0.12	0.85	0.78	0.78
v/c Ratio	0.20	0.21	0.15	0.30	0.23	0.03
Control Delay	27.2	11.0	27.3	2.6	5.3	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.2	11.0	27.3	2.6	5.3	2.7
LOS	C	B	C	A	A	A
Approach Delay	18.4			4.2	5.1	
Approach LOS	B			A	A	

Intersection Summary

Cycle Length: 75	
Actuated Cycle Length: 62.1	
Natural Cycle: 75	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.30	
Intersection Signal Delay: 5.9	Intersection LOS: A
Intersection Capacity Utilization 37.4%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: Redlands Bl & Cottonwood Av



Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
2: Redlands Bl & Cottonwood Av

Existing Conditions AM Peak Hour
HCM 6th Signalized Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↶	↷	↶	↷	↷	↶
Traffic Volume (veh/h)	40	48	30	449	316	31
Future Volume (veh/h)	40	48	30	449	316	31
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	42	51	32	473	333	33
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	161	143	85	1458	1247	1057
Arrive On Green	0.09	0.09	0.05	0.78	0.67	0.67
Sat Flow, veh/h	1781	1585	1781	1870	1870	1585
Grp Volume(v), veh/h	42	51	32	473	333	33
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1870	1870	1585
Q Serve(g_s), s	1.4	1.9	1.1	4.6	4.4	0.4
Cycle Q Clear(g_c), s	1.4	1.9	1.1	4.6	4.4	0.4
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	161	143	85	1458	1247	1057
V/C Ratio(X)	0.26	0.36	0.37	0.32	0.27	0.03
Avail Cap(c_a), veh/h	550	489	231	1458	1247	1057
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.1	26.3	28.4	2.0	4.2	3.5
Incr Delay (d2), s/veh	0.8	1.5	2.7	0.6	0.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	1.7	0.5	0.2	1.0	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	26.9	27.8	31.1	2.6	4.7	3.5
LnGrp LOS	C	C	C	A	A	A
Approach Vol, veh/h	93			505	366	
Approach Delay, s/veh	27.4			4.4	4.6	
Approach LOS	C			A	A	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		52.0		9.6	7.0	45.0
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		48.0		19.0	8.0	36.0
Max Q Clear Time (g_c+I1), s		6.6		3.9	3.1	6.4
Green Ext Time (p_c), s		2.8		0.2	0.0	1.9
Intersection Summary						
HCM 6th Ctrl Delay			6.7			
HCM 6th LOS			A			

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
3: Redlands BI & Alessandro BI

Existing Conditions AM Peak Hour
HCM 6th AWSC

Intersection

Intersection Delay, s/veh30.5

Intersection LOS D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕		↕			↕	↕		↕	
Traffic Vol, veh/h	53	43	27	70	154	11	19	391	77	8	276	92
Future Vol, veh/h	53	43	27	70	154	11	19	391	77	8	276	92
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	58	47	29	76	167	12	21	425	84	9	300	100
Number of Lanes	0	1	1	0	1	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	2
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	1	2	2	1
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	2	1	1	2
HCM Control Delay	13.7	21.3	36.4	34.1
HCM LOS	B	C	E	D

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	5%	0%	55%	0%	30%	2%
Vol Thru, %	95%	0%	45%	0%	66%	73%
Vol Right, %	0%	100%	0%	100%	5%	24%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	410	77	96	27	235	376
LT Vol	19	0	53	0	70	8
Through Vol	391	0	43	0	154	276
RT Vol	0	77	0	27	11	92
Lane Flow Rate	446	84	104	29	255	409
Geometry Grp	7	7	7	7	6	6
Degree of Util (X)	0.872	0.147	0.254	0.063	0.569	0.809
Departure Headway (Hd)	7.044	6.304	8.778	7.766	8.014	7.129
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	513	565	412	464	447	503
Service Time	4.832	4.091	6.478	5.466	6.112	5.221
HCM Lane V/C Ratio	0.869	0.149	0.252	0.063	0.57	0.813
HCM Control Delay	41.3	10.2	14.4	11	21.3	34.1
HCM Lane LOS	E	B	B	B	C	D
HCM 95th-tile Q	9.4	0.5	1	0.2	3.5	7.7

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
4: Redlands Bl & Cactus Av

Existing Conditions AM Peak Hour
HCM 6th AWSC

Intersection

Intersection Delay, s/veh 14.7

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕	↕		↕			↕↕	↕		↕	↕
Traffic Vol, veh/h	124	6	70	1	14	20	21	345	0	3	279	108
Future Vol, veh/h	124	6	70	1	14	20	21	345	0	3	279	108
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	141	7	80	1	16	23	24	392	0	3	317	123
Number of Lanes	0	2	1	0	1	0	0	2	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	3	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	3	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	1	3
HCM Control Delay	12.1	11	14.3	16.8
HCM LOS	B	B	B	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	SBLn1	SBLn2
Vol Left, %	15%	0%	0%	98%	0%	0%	3%	1%	0%
Vol Thru, %	85%	100%	100%	2%	100%	0%	40%	95%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	57%	4%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	136	230	0	126	4	70	35	293	97
LT Vol	21	0	0	124	0	0	1	3	0
Through Vol	115	230	0	2	4	0	14	279	0
RT Vol	0	0	0	0	0	70	20	11	97
Lane Flow Rate	155	261	0	143	5	80	40	333	110
Geometry Grp	8	8	8	7	7	7	8	8	8
Degree of Util (X)	0.288	0.481	0	0.296	0.009	0.138	0.084	0.606	0.18
Departure Headway (Hd)	6.707	6.629	6.629	7.447	6.946	6.233	7.621	6.558	5.871
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	533	541	0	481	513	572	473	549	606
Service Time	4.488	4.409	4.409	5.225	4.723	4.01	5.321	4.337	3.649
HCM Lane V/C Ratio	0.291	0.482	0	0.297	0.01	0.14	0.085	0.607	0.182
HCM Control Delay	12.2	15.5	9.4	13.4	9.8	10	11	19	10
HCM Lane LOS	B	C	N	B	A	A	B	C	A
HCM 95th-tile Q	1.2	2.6	0	1.2	0	0.5	0.3	4	0.7

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Redlands Alessandro TIA
5: Merwin St & Alessandro Bl

Existing Conditions AM Peak Hour
HCM 6th TWSC

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	135	0	0	213	1	4	0	1	0	0	4
Future Vol, veh/h	1	135	0	0	213	1	4	0	1	0	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	150	0	0	237	1	4	0	1	0	0	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	238	0	0	150	0	0	392	390	150	391	390	238
Stage 1	-	-	-	-	-	-	152	152	-	238	238	-
Stage 2	-	-	-	-	-	-	240	238	-	153	152	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1329	-	-	1431	-	-	567	545	896	568	545	801
Stage 1	-	-	-	-	-	-	850	772	-	765	708	-
Stage 2	-	-	-	-	-	-	763	708	-	849	772	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1329	-	-	1431	-	-	564	544	896	567	544	801
Mov Cap-2 Maneuver	-	-	-	-	-	-	564	544	-	567	544	-
Stage 1	-	-	-	-	-	-	849	771	-	764	708	-
Stage 2	-	-	-	-	-	-	759	708	-	847	771	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0	11	9.5
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	609	1329	-	-	1431	-	-	801
HCM Lane V/C Ratio	0.009	0.001	-	-	-	-	-	0.006
HCM Control Delay (s)	11	7.7	0	-	0	-	-	9.5
HCM Lane LOS	B	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
1: Wilmot St & Alessandro Bl

Existing Conditions PM Peak Hour
HCM 6th TWSC

Intersection												
Int Delay, s/veh	1.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	16	216	11	8	126	1	5	7	7	1	2	18
Future Vol, veh/h	16	216	11	8	126	1	5	7	7	1	2	18
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	19	251	13	9	147	1	6	8	8	1	2	21

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	148	0	0	264	0	0	473	462	258	470	468	148
Stage 1	-	-	-	-	-	-	296	296	-	166	166	-
Stage 2	-	-	-	-	-	-	177	166	-	304	302	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1434	-	-	1300	-	-	501	497	781	504	493	899
Stage 1	-	-	-	-	-	-	712	668	-	836	761	-
Stage 2	-	-	-	-	-	-	825	761	-	705	664	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1434	-	-	1300	-	-	478	485	781	483	481	899
Mov Cap-2 Maneuver	-	-	-	-	-	-	478	485	-	483	481	-
Stage 1	-	-	-	-	-	-	701	657	-	823	755	-
Stage 2	-	-	-	-	-	-	797	755	-	678	653	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.5			0.5			11.7			9.6		
HCM LOS							B			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	561	1434	-	-	1300	-	-	800
HCM Lane V/C Ratio	0.039	0.013	-	-	0.007	-	-	0.031
HCM Control Delay (s)	11.7	7.5	0	-	7.8	0	-	9.6
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
2: Redlands Bl & Cottonwood Av

Existing Conditions PM Peak Hour
Timings



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗	↖	↗	↗	↗
Traffic Volume (vph)	26	26	23	334	468	52
Future Volume (vph)	26	26	23	334	468	52
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	22.5	22.5	11.5	22.5	36.5	36.5
Total Split (s)	23.0	23.0	12.0	52.0	40.0	40.0
Total Split (%)	30.7%	30.7%	16.0%	69.3%	53.3%	53.3%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	Max	Max	Max
Act Effect Green (s)	7.2	7.2	7.1	55.4	53.0	53.0
Actuated g/C Ratio	0.11	0.11	0.11	0.85	0.82	0.82
v/c Ratio	0.13	0.13	0.12	0.21	0.31	0.04
Control Delay	27.0	12.8	26.8	2.1	4.3	1.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.0	12.8	26.8	2.1	4.3	1.8
LOS	C	B	C	A	A	A
Approach Delay	19.9			3.7	4.1	
Approach LOS	B			A	A	

Intersection Summary

Cycle Length: 75	
Actuated Cycle Length: 64.8	
Natural Cycle: 75	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.31	
Intersection Signal Delay: 4.8	Intersection LOS: A
Intersection Capacity Utilization 37.1%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: Redlands Bl & Cottonwood Av



Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
2: Redlands Bl & Cottonwood Av

Existing Conditions PM Peak Hour
HCM 6th Signalized Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	26	26	23	334	468	52
Future Volume (veh/h)	26	26	23	334	468	52
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	26	26	23	337	473	53
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	120	107	66	1495	1301	1102
Arrive On Green	0.07	0.07	0.04	0.80	0.70	0.70
Sat Flow, veh/h	1781	1585	1781	1870	1870	1585
Grp Volume(v), veh/h	26	26	23	337	473	53
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1870	1870	1585
Q Serve(g_s), s	0.8	0.9	0.8	2.7	6.2	0.6
Cycle Q Clear(g_c), s	0.8	0.9	0.8	2.7	6.2	0.6
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	120	107	66	1495	1301	1102
V/C Ratio(X)	0.22	0.24	0.35	0.23	0.36	0.05
Avail Cap(c_a), veh/h	564	501	237	1495	1301	1102
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.5	26.5	28.2	1.5	3.7	2.9
Incr Delay (d2), s/veh	0.9	1.2	3.1	0.4	0.8	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.9	0.3	0.1	1.1	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	27.4	27.7	31.3	1.8	4.5	3.0
LnGrp LOS	C	C	C	A	A	A
Approach Vol, veh/h				360	526	
Approach Delay, s/veh				3.7	4.4	
Approach LOS				A	A	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		52.0		8.1	6.2	45.8
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		48.0		19.0	8.0	36.0
Max Q Clear Time (g_c+I1), s		4.7		2.9	2.8	8.2
Green Ext Time (p_c), s		1.8		0.1	0.0	2.8
Intersection Summary						
HCM 6th Ctrl Delay			5.4			
HCM 6th LOS			A			

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
3: Redlands BI & Alessandro BI

Existing Conditions PM Peak Hour
HCM 6th AWSC

Intersection

Intersection Delay, s/veh 28.6

Intersection LOS D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔		↔			↔	↔		↔	
Traffic Vol, veh/h	79	121	22	47	60	18	16	263	67	28	393	56
Future Vol, veh/h	79	121	22	47	60	18	16	263	67	28	393	56
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	82	126	23	49	63	19	17	274	70	29	409	58
Number of Lanes	0	1	1	0	1	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	2
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	1	2	2	1
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	2	1	1	2
HCM Control Delay	16.2	14.5	16.7	46.8
HCM LOS	C	B	C	E

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	6%	0%	40%	0%	38%	6%
Vol Thru, %	94%	0%	60%	0%	48%	82%
Vol Right, %	0%	100%	0%	100%	14%	12%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	279	67	200	22	125	477
LT Vol	16	0	79	0	47	28
Through Vol	263	0	121	0	60	393
RT Vol	0	67	0	22	18	56
Lane Flow Rate	291	70	208	23	130	497
Geometry Grp	7	7	7	7	6	6
Degree of Util (X)	0.562	0.12	0.452	0.044	0.292	0.917
Departure Headway (Hd)	6.956	6.21	7.819	6.896	8.06	6.642
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	517	575	460	517	444	547
Service Time	4.719	3.972	5.584	4.661	6.138	4.695
HCM Lane V/C Ratio	0.563	0.122	0.452	0.044	0.293	0.909
HCM Control Delay	18.3	9.8	16.9	10	14.5	46.8
HCM Lane LOS	C	A	C	A	B	E
HCM 95th-tile Q	3.4	0.4	2.3	0.1	1.2	11.1

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
4: Redlands Bl & Cactus Av

Existing Conditions PM Peak Hour
HCM 6th AWSC

Intersection

Intersection Delay, s/veh 13
Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕	↗		↕			↕↕	↗		↗	↗
Traffic Vol, veh/h	159	13	30	0	6	9	11	184	0	18	304	108
Future Vol, veh/h	159	13	30	0	6	9	11	184	0	18	304	108
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	167	14	32	0	6	9	12	194	0	19	320	114
Number of Lanes	0	2	1	0	1	0	0	2	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	3	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	3	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	1	3
HCM Control Delay	12	9.7	10.7	14.6
HCM LOS	B	A	B	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	SBLn1	SBLn2
Vol Left, %	15%	0%	0%	97%	0%	0%	0%	5%	0%
Vol Thru, %	85%	100%	100%	3%	100%	0%	40%	91%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	60%	3%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	72	123	0	163	9	30	15	333	97
LT Vol	11	0	0	159	0	0	0	18	0
Through Vol	61	123	0	4	9	0	6	304	0
RT Vol	0	0	0	0	0	30	9	11	97
Lane Flow Rate	76	129	0	172	9	32	16	350	102
Geometry Grp	8	8	8	7	7	7	8	8	8
Degree of Util (X)	0.137	0.229	0	0.326	0.016	0.049	0.029	0.574	0.147
Departure Headway (Hd)	6.47	6.393	6.393	6.822	6.33	5.621	6.721	5.895	5.186
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	554	562	0	528	565	637	531	613	692
Service Time	4.212	4.135	4.135	4.56	4.068	3.359	4.48	3.629	2.92
HCM Lane V/C Ratio	0.137	0.23	0	0.326	0.016	0.05	0.03	0.571	0.147
HCM Control Delay	10.2	11	9.1	12.8	9.2	8.7	9.7	16.3	8.8
HCM Lane LOS	B	B	N	B	A	A	A	C	A
HCM 95th-tile Q	0.5	0.9	0	1.4	0	0.2	0.1	3.6	0.5

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
5: Merwin St & Alessandro Bl

Existing Conditions PM Peak Hour
HCM 6th TWSC

Intersection												
Int Delay, s/veh	0.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	209	2	2	113	3	1	0	1	0	0	1
Future Vol, veh/h	2	209	2	2	113	3	1	0	1	0	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	227	2	2	123	3	1	0	1	0	0	1

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	126	0	0	229	0	0	361	362	228	362	362	125
Stage 1	-	-	-	-	-	-	232	232	-	129	129	-
Stage 2	-	-	-	-	-	-	129	130	-	233	233	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1460	-	-	1339	-	-	595	565	811	594	565	926
Stage 1	-	-	-	-	-	-	771	713	-	875	789	-
Stage 2	-	-	-	-	-	-	875	789	-	770	712	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1460	-	-	1339	-	-	593	563	811	592	563	926
Mov Cap-2 Maneuver	-	-	-	-	-	-	593	563	-	592	563	-
Stage 1	-	-	-	-	-	-	769	712	-	873	787	-
Stage 2	-	-	-	-	-	-	872	787	-	767	711	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	0.1		0.1		10.3		8.9	
HCM LOS					B		A	

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	685	1460	-	-	1339	-	-	926
HCM Lane V/C Ratio	0.003	0.001	-	-	0.002	-	-	0.001
HCM Control Delay (s)	10.3	7.5	0	-	7.7	0	-	8.9
HCM Lane LOS		B	A	A	-	A	A	-
HCM 95th %tile Q(veh)		0	0	-	-	0	-	0

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

EP CONDITIONS

Redlands Alessandro TIA
1: Wilmot St & Alessandro BI

EP Conditions AM Peak Hour
HCM 6th TWSC

Intersection												
Int Delay, s/veh	1.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	17	113	6	8	269	4	10	4	15	7	3	19
Future Vol, veh/h	17	113	6	8	269	4	10	4	15	7	3	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	18	122	6	9	289	4	11	4	16	8	3	20

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	293	0	0	128	0	0	482	472	125	480	473	291
Stage 1	-	-	-	-	-	-	161	161	-	309	309	-
Stage 2	-	-	-	-	-	-	321	311	-	171	164	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1269	-	-	1458	-	-	495	490	926	496	490	748
Stage 1	-	-	-	-	-	-	841	765	-	701	660	-
Stage 2	-	-	-	-	-	-	691	658	-	831	762	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1269	-	-	1458	-	-	471	479	926	476	479	748
Mov Cap-2 Maneuver	-	-	-	-	-	-	471	479	-	476	479	-
Stage 1	-	-	-	-	-	-	828	754	-	690	655	-
Stage 2	-	-	-	-	-	-	664	653	-	800	751	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1			0.2			11			11.1		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	633	1269	-	-	1458	-	-	625
HCM Lane V/C Ratio	0.049	0.014	-	-	0.006	-	-	0.05
HCM Control Delay (s)	11	7.9	0	-	7.5	0	-	11.1
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0.2

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
2: Redlands Bl & Cottonwood Av

EP Conditions AM Peak Hour
Timings



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗	↖	↑	↑	↗
Traffic Volume (vph)	40	52	34	452	319	31
Future Volume (vph)	40	52	34	452	319	31
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	22.5	22.5	11.5	22.5	36.5	36.5
Total Split (s)	23.0	23.0	12.0	52.0	40.0	40.0
Total Split (%)	30.7%	30.7%	16.0%	69.3%	53.3%	53.3%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	Max	Max	Max
Act Effct Green (s)	7.5	7.5	7.3	51.6	47.0	47.0
Actuated g/C Ratio	0.12	0.12	0.11	0.80	0.73	0.73
v/c Ratio	0.20	0.24	0.18	0.32	0.25	0.03
Control Delay	27.8	11.0	27.9	3.1	5.7	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.8	11.0	27.9	3.1	5.7	2.7
LOS	C	B	C	A	A	A
Approach Delay	18.3			4.8	5.4	
Approach LOS	B			A	A	

Intersection Summary

Cycle Length: 75
 Actuated Cycle Length: 64.3
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.32
 Intersection Signal Delay: 6.4
 Intersection Capacity Utilization 38.5%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service A

Splits and Phases: 2: Redlands Bl & Cottonwood Av



Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
2: Redlands Bl & Cottonwood Av

EP Conditions AM Peak Hour
HCM 6th Signalized Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	40	52	34	452	319	31
Future Volume (veh/h)	40	52	34	452	319	31
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	42	55	36	476	336	33
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	164	146	93	1456	1237	1048
Arrive On Green	0.09	0.09	0.05	0.78	0.66	0.66
Sat Flow, veh/h	1781	1585	1781	1870	1870	1585
Grp Volume(v), veh/h	42	55	36	476	336	33
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1870	1870	1585
Q Serve(g_s), s	1.4	2.0	1.2	4.7	4.6	0.4
Cycle Q Clear(g_c), s	1.4	2.0	1.2	4.7	4.6	0.4
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	164	146	93	1456	1237	1048
V/C Ratio(X)	0.26	0.38	0.39	0.33	0.27	0.03
Avail Cap(c_a), veh/h	549	488	231	1456	1237	1048
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.0	26.3	28.3	2.0	4.3	3.6
Incr Delay (d2), s/veh	0.8	1.6	2.6	0.6	0.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	1.9	0.5	0.2	1.0	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	26.9	27.9	30.9	2.6	4.9	3.7
LnGrp LOS	C	C	C	A	A	A
Approach Vol, veh/h	97			512	369	
Approach Delay, s/veh	27.5			4.6	4.8	
Approach LOS	C			A	A	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		52.0		9.7	7.2	44.8
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		48.0		19.0	8.0	36.0
Max Q Clear Time (g_c+I1), s		6.7		4.0	3.2	6.6
Green Ext Time (p_c), s		2.8		0.2	0.0	1.9
Intersection Summary						
HCM 6th Ctrl Delay			6.9			
HCM 6th LOS			A			

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
3: Redlands BI & Alessandro BI

EP Conditions AM Peak Hour
HCM 6th AWSC

Intersection

Intersection Delay, s/veh 39.8

Intersection LOS E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕		↕			↕	↕		↕	
Traffic Vol, veh/h	53	54	27	70	154	11	35	400	77	17	276	92
Future Vol, veh/h	53	54	27	70	154	11	35	400	77	17	276	92
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	58	59	29	76	167	12	38	435	84	18	300	100
Number of Lanes	0	1	1	0	1	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	1	2
HCM Control Delay	14.6	23.1	52.3	42.1
HCM LOS	B	C	F	E

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	8%	0%	50%	0%	30%	4%
Vol Thru, %	92%	0%	50%	0%	66%	72%
Vol Right, %	0%	100%	0%	100%	5%	24%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	435	77	107	27	235	385
LT Vol	35	0	53	0	70	17
Through Vol	400	0	54	0	154	276
RT Vol	0	77	0	27	11	92
Lane Flow Rate	473	84	116	29	255	418
Geometry Grp	7	7	7	7	6	6
Degree of Util (X)	0.967	0.153	0.29	0.065	0.595	0.865
Departure Headway (Hd)	7.362	6.602	8.99	8.006	8.381	7.443
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	496	547	399	446	429	485
Service Time	5.062	4.302	6.76	5.774	6.442	5.497
HCM Lane V/C Ratio	0.954	0.154	0.291	0.065	0.594	0.862
HCM Control Delay	59.7	10.5	15.4	11.3	23.1	42.1
HCM Lane LOS	F	B	C	B	C	E
HCM 95th-tile Q	12.3	0.5	1.2	0.2	3.8	9.1

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
4: Redlands Bl & Cactus Av

EP Conditions AM Peak Hour
HCM 6th AWSC

Intersection

Intersection Delay, s/veh 14.6

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕	↕		↕			↕↕	↕		↕	↕
Traffic Vol, veh/h	127	7	72	1	14	21	21	347	0	3	279	108
Future Vol, veh/h	127	7	72	1	14	21	21	347	0	3	279	108
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	144	8	82	1	16	24	24	394	0	3	317	123
Number of Lanes	0	2	1	0	1	0	0	2	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	3	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	3	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	1	3
HCM Control Delay	12.2	11.1	14.4	16.3
HCM LOS	B	B	B	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	SBLn1	SBLn2
Vol Left, %	15%	0%	0%	98%	0%	0%	3%	1%	0%
Vol Thru, %	85%	100%	100%	2%	100%	0%	39%	99%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	58%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	137	231	0	129	5	72	36	282	108
LT Vol	21	0	0	127	0	0	1	3	0
Through Vol	116	231	0	2	5	0	14	279	0
RT Vol	0	0	0	0	0	72	21	0	108
Lane Flow Rate	155	263	0	147	5	82	41	320	123
Geometry Grp	8	8	8	7	7	7	8	8	8
Degree of Util (X)	0.291	0.486	0	0.304	0.01	0.142	0.087	0.589	0.201
Departure Headway (Hd)	6.735	6.657	6.657	7.453	6.953	6.241	7.641	6.622	5.908
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	531	539	0	481	512	571	472	542	603
Service Time	4.516	4.438	4.438	5.234	4.734	4.021	5.341	4.403	3.688
HCM Lane V/C Ratio	0.292	0.488	0	0.306	0.01	0.144	0.087	0.59	0.204
HCM Control Delay	12.3	15.6	9.4	13.5	9.8	10.1	11.1	18.6	10.2
HCM Lane LOS	B	C	N	B	A	B	B	C	B
HCM 95th-tile Q	1.2	2.6	0	1.3	0	0.5	0.3	3.8	0.7

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
5: Merwin St & Alessandro Bl

EP Conditions AM Peak Hour
HCM 6th TWSC

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	135	2	0	213	1	4	0	1	0	0	4
Future Vol, veh/h	1	135	2	0	213	1	4	0	1	0	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	150	2	0	237	1	4	0	1	0	0	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	238	0	0	152	0	0	393	391	151	392	392	238
Stage 1	-	-	-	-	-	-	153	153	-	238	238	-
Stage 2	-	-	-	-	-	-	240	238	-	154	154	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1329	-	-	1429	-	-	566	545	895	567	544	801
Stage 1	-	-	-	-	-	-	849	771	-	765	708	-
Stage 2	-	-	-	-	-	-	763	708	-	848	770	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1329	-	-	1429	-	-	563	544	895	566	543	801
Mov Cap-2 Maneuver	-	-	-	-	-	-	563	544	-	566	543	-
Stage 1	-	-	-	-	-	-	848	770	-	764	708	-
Stage 2	-	-	-	-	-	-	759	708	-	846	769	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0	11	9.5
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	608	1329	-	-	1429	-	-	801
HCM Lane V/C Ratio	0.009	0.001	-	-	-	-	-	0.006
HCM Control Delay (s)	11	7.7	0	-	0	-	-	9.5
HCM Lane LOS	B	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
6: Redlands Bl & Dwy 1

EP Conditions AM Peak Hour
HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕↔			↕
Traffic Vol, veh/h	0	50	383	16	0	373
Future Vol, veh/h	0	50	383	16	0	373
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	54	416	17	0	405

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	-	217	0	0	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	6.93	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.319	-	-	-
Pot Cap-1 Maneuver	0	788	-	-	0
Stage 1	0	-	-	-	0
Stage 2	0	-	-	-	0
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	-	788	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.9	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	-	788
HCM Lane V/C Ratio	-	-	0.069
HCM Control Delay (s)	-	-	9.9
HCM Lane LOS	-	-	A
HCM 95th %tile Q(veh)	-	-	0.2

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
7: Dwy 2 & Alessandro BI

EP Conditions AM Peak Hour
HCM 6th TWSC

Intersection

Int Delay, s/veh 0.1

Movement EBT EBR WBL WBT NBL NBR

Lane Configurations	↔			↑		↗
Traffic Vol, veh/h	115	41	0	221	0	4
Future Vol, veh/h	115	41	0	221	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	125	45	0	240	0	4

Major/Minor Major1 Major2 Minor1

Conflicting Flow All	0	0	-	-	-	148
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	-	-	0	-	0	899
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	899
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach EB WB NB

HCM Control Delay, s	0	0	9
HCM LOS			A

Minor Lane/Major Mvmt NBLn1 EBT EBR WBT

Capacity (veh/h)	899	-	-	-
HCM Lane V/C Ratio	0.005	-	-	-
HCM Control Delay (s)	9	-	-	-
HCM Lane LOS	A	-	-	-
HCM 95th %tile Q(veh)	0	-	-	-

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
1: Wilmot St & Alessandro BI

EP Conditions PM Peak Hour
HCM 6th TWSC

Intersection												
Int Delay, s/veh	1.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	16	225	11	13	138	3	5	7	9	3	2	18
Future Vol, veh/h	16	225	11	13	138	3	5	7	9	3	2	18
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	19	262	13	15	160	3	6	8	10	3	2	21

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	163	0	0	275	0	0	510	500	269	508	505	162
Stage 1	-	-	-	-	-	-	307	307	-	192	192	-
Stage 2	-	-	-	-	-	-	203	193	-	316	313	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1416	-	-	1288	-	-	474	473	770	475	470	883
Stage 1	-	-	-	-	-	-	703	661	-	810	742	-
Stage 2	-	-	-	-	-	-	799	741	-	695	657	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1416	-	-	1288	-	-	451	459	770	452	456	883
Mov Cap-2 Maneuver	-	-	-	-	-	-	451	459	-	452	456	-
Stage 1	-	-	-	-	-	-	692	650	-	797	732	-
Stage 2	-	-	-	-	-	-	767	731	-	666	646	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.5			0.7			11.8			10.1		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	552	1416	-	-	1288	-	-	732
HCM Lane V/C Ratio	0.044	0.013	-	-	0.012	-	-	0.037
HCM Control Delay (s)	11.8	7.6	0	-	7.8	0	-	10.1
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
2: Redlands Bl & Cottonwood Av

EP Conditions PM Peak Hour
Timings



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗	↖	↑	↑	↗
Traffic Volume (vph)	26	32	28	337	472	52
Future Volume (vph)	26	32	28	337	472	52
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	22.5	22.5	11.5	22.5	36.5	36.5
Total Split (s)	23.0	23.0	12.0	52.0	40.0	40.0
Total Split (%)	30.7%	30.7%	16.0%	69.3%	53.3%	53.3%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	Max	Max	Max
Act Effct Green (s)	7.2	7.2	7.2	55.4	50.7	50.7
Actuated g/C Ratio	0.11	0.11	0.11	0.85	0.78	0.78
v/c Ratio	0.13	0.16	0.14	0.21	0.33	0.04
Control Delay	27.0	12.2	27.1	2.1	5.6	2.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.0	12.2	27.1	2.1	5.6	2.2
LOS	C	B	C	A	A	A
Approach Delay	18.8			4.0	5.3	
Approach LOS	B			A	A	

Intersection Summary

Cycle Length: 75
 Actuated Cycle Length: 64.8
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.33
 Intersection Signal Delay: 5.6
 Intersection Capacity Utilization 37.3%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service A

Splits and Phases: 2: Redlands Bl & Cottonwood Av



Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
2: Redlands Bl & Cottonwood Av

EP Conditions PM Peak Hour
HCM 6th Signalized Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	26	32	28	337	472	52
Future Volume (veh/h)	26	32	28	337	472	52
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	26	32	28	340	477	53
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	128	114	77	1488	1282	1087
Arrive On Green	0.07	0.07	0.04	0.80	0.69	0.69
Sat Flow, veh/h	1781	1585	1781	1870	1870	1585
Grp Volume(v), veh/h	26	32	28	340	477	53
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1870	1870	1585
Q Serve(g_s), s	0.8	1.2	0.9	2.7	6.5	0.7
Cycle Q Clear(g_c), s	0.8	1.2	0.9	2.7	6.5	0.7
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	128	114	77	1488	1282	1087
V/C Ratio(X)	0.20	0.28	0.36	0.23	0.37	0.05
Avail Cap(c_a), veh/h	561	499	236	1488	1282	1087
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.4	26.5	28.1	1.5	4.0	3.1
Incr Delay (d2), s/veh	0.8	1.3	2.8	0.4	0.8	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	1.1	0.4	0.1	1.2	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	27.1	27.8	30.9	1.9	4.8	3.2
LnGrp LOS	C	C	C	A	A	A
Approach Vol, veh/h	58			368	530	
Approach Delay, s/veh	27.5			4.1	4.7	
Approach LOS	C			A	A	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		52.0		8.4	6.6	45.4
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		48.0		19.0	8.0	36.0
Max Q Clear Time (g_c+I1), s		4.7		3.2	2.9	8.5
Green Ext Time (p_c), s		1.9		0.1	0.0	2.9
Intersection Summary						
HCM 6th Ctrl Delay			5.8			
HCM 6th LOS			A			

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
3: Redlands BI & Alessandro BI

EP Conditions PM Peak Hour
HCM 6th AWSC

Intersection

Intersection Delay, s/veh 34.5

Intersection LOS D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕			↕	↗		↕	
Traffic Vol, veh/h	79	136	22	47	60	18	36	274	67	40	393	56
Future Vol, veh/h	79	136	22	47	60	18	36	274	67	40	393	56
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	82	142	23	49	63	19	38	285	70	42	409	58
Number of Lanes	0	1	1	0	1	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	1	2
HCM Control Delay	17.8	15.2	20	58.8
HCM LOS	C	C	C	F

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	12%	0%	37%	0%	38%	8%
Vol Thru, %	88%	0%	63%	0%	48%	80%
Vol Right, %	0%	100%	0%	100%	14%	11%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	310	67	215	22	125	489
LT Vol	36	0	79	0	47	40
Through Vol	274	0	136	0	60	393
RT Vol	0	67	0	22	18	56
Lane Flow Rate	323	70	224	23	130	509
Geometry Grp	7	7	7	7	6	6
Degree of Util (X)	0.644	0.124	0.499	0.045	0.307	0.971
Departure Headway (Hd)	7.176	6.398	8.024	7.113	8.496	6.86
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	501	556	448	500	426	525
Service Time	4.962	4.183	5.812	4.9	6.496	4.936
HCM Lane V/C Ratio	0.645	0.126	0.5	0.046	0.305	0.97
HCM Control Delay	22.2	10.1	18.6	10.2	15.2	58.8
HCM Lane LOS	C	B	C	B	C	F
HCM 95th-tile Q	4.5	0.4	2.7	0.1	1.3	12.8

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
4: Redlands Bl & Cactus Av

EP Conditions PM Peak Hour
HCM 6th AWSC

Intersection

Intersection Delay, s/veh 12.9

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕	↗		↕			↕↕	↗		↕	↗
Traffic Vol, veh/h	163	14	33	0	6	10	11	187	0	18	304	108
Future Vol, veh/h	163	14	33	0	6	10	11	187	0	18	304	108
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	172	15	35	0	6	11	12	197	0	19	320	114
Number of Lanes	0	2	1	0	1	0	0	2	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	3	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	3	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	1	3
HCM Control Delay	12.2	9.7	10.8	14.3
HCM LOS	B	A	B	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	SBLn1	SBLn2
Vol Left, %	15%	0%	0%	97%	0%	0%	0%	6%	0%
Vol Thru, %	85%	100%	100%	3%	100%	0%	38%	94%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	62%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	73	125	0	168	9	33	16	322	108
LT Vol	11	0	0	163	0	0	0	18	0
Through Vol	62	125	0	5	9	0	6	304	0
RT Vol	0	0	0	0	0	33	10	0	108
Lane Flow Rate	77	131	0	176	10	35	17	339	114
Geometry Grp	8	8	8	7	7	7	8	8	8
Degree of Util (X)	0.139	0.234	0	0.335	0.017	0.054	0.032	0.561	0.165
Departure Headway (Hd)	6.501	6.426	6.426	6.833	6.341	5.633	6.738	5.962	5.229
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	551	558	0	526	564	635	530	607	686
Service Time	4.247	4.171	4.171	4.572	4.08	3.372	4.496	3.697	2.963
HCM Lane V/C Ratio	0.14	0.235	0	0.335	0.018	0.055	0.032	0.558	0.166
HCM Control Delay	10.3	11.1	9.2	13	9.2	8.7	9.7	16.1	9
HCM Lane LOS	B	B	N	B	A	A	A	C	A
HCM 95th-tile Q	0.5	0.9	0	1.5	0.1	0.2	0.1	3.5	0.6

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
5: Merwin St & Alessandro Bl

EP Conditions PM Peak Hour
HCM 6th TWSC

Intersection												
Int Delay, s/veh	0.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	209	4	2	113	3	1	0	1	0	0	1
Future Vol, veh/h	2	209	4	2	113	3	1	0	1	0	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	227	4	2	123	3	1	0	1	0	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	126	0	0	231	0	0	362	363	229	363	364	125
Stage 1	-	-	-	-	-	-	233	233	-	129	129	-
Stage 2	-	-	-	-	-	-	129	130	-	234	235	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1460	-	-	1337	-	-	594	565	810	593	564	926
Stage 1	-	-	-	-	-	-	770	712	-	875	789	-
Stage 2	-	-	-	-	-	-	875	789	-	769	710	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1460	-	-	1337	-	-	592	563	810	591	562	926
Mov Cap-2 Maneuver	-	-	-	-	-	-	592	563	-	591	562	-
Stage 1	-	-	-	-	-	-	768	711	-	873	787	-
Stage 2	-	-	-	-	-	-	872	787	-	766	709	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.1			10.3			8.9		
HCM LOS							B			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	684	1460	-	-	1337	-	-	926
HCM Lane V/C Ratio	0.003	0.001	-	-	0.002	-	-	0.001
HCM Control Delay (s)	10.3	7.5	0	-	7.7	0	-	8.9
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
6: Redlands Bl & Dwy 1

EP Conditions PM Peak Hour
HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕			↖
Traffic Vol, veh/h	0	64	252	21	0	462
Future Vol, veh/h	0	64	252	21	0	462
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	70	274	23	0	502

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	-	149	0	0	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	6.93	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.319	-	-	-
Pot Cap-1 Maneuver	0	871	-	-	0
Stage 1	0	-	-	-	0
Stage 2	0	-	-	-	0
Platoon blocked, %					
Mov Cap-1 Maneuver	-	871	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.5	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	-	871
HCM Lane V/C Ratio	-	-	0.08
HCM Control Delay (s)	-	-	9.5
HCM Lane LOS	-	-	A
HCM 95th %tile Q(veh)	-	-	0.3

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
7: Dwy 2 & Alessandro BI

EP Conditions PM Peak Hour
HCM 6th TWSC

Intersection

Int Delay, s/veh 0.2

Movement EBT EBR WBL WBT NBL NBR

Lane Configurations	↔			↑		↗
Traffic Vol, veh/h	184	56	0	115	0	6
Future Vol, veh/h	184	56	0	115	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	200	61	0	125	0	7

Major/Minor Major1 Major2 Minor1

Conflicting Flow All	0	0	-	-	-	231
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	-	-	0	-	0	808
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	808
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach EB WB NB

HCM Control Delay, s	0	0	9.5
HCM LOS			A

Minor Lane/Major Mvmt NBLn1 EBT EBR WBT

Capacity (veh/h)	808	-	-	-
HCM Lane V/C Ratio	0.008	-	-	-
HCM Control Delay (s)	9.5	-	-	-
HCM Lane LOS	A	-	-	-
HCM 95th %tile Q(veh)	0	-	-	-

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

EP CONDITIONS WITH IMPROVEMENTS

Redlands Alessandro TIA
3: Redlands BI & Alessandro BI

Mitigated EP Conditions AM Peak Hour
Timings

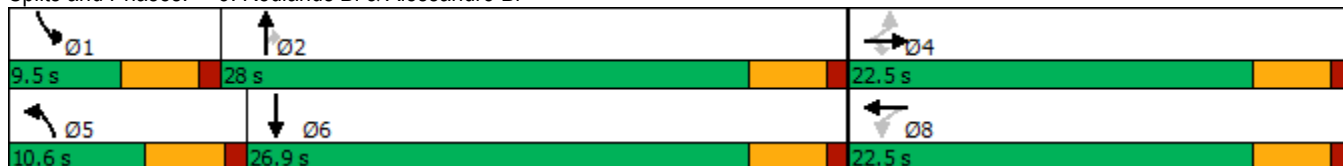
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations		↖	↗		↔	↖	↗	↖	↗	↖
Traffic Volume (vph)	53	54	27	70	154	35	400	77	17	276
Future Volume (vph)	53	54	27	70	154	35	400	77	17	276
Turn Type	Perm	NA	Perm	Perm	NA	Prot	NA	Perm	Prot	NA
Protected Phases		4			8	5	2		1	6
Permitted Phases	4		4	8				2		
Detector Phase	4	4	4	8	8	5	2	2	1	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5
Total Split (s)	22.5	22.5	22.5	22.5	22.5	10.6	28.0	28.0	9.5	26.9
Total Split (%)	37.5%	37.5%	37.5%	37.5%	37.5%	17.7%	46.7%	46.7%	15.8%	44.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	Min	None	Min
Act Effct Green (s)		12.1	12.1		12.1	6.4	19.2	19.2	5.4	17.4
Actuated g/C Ratio		0.29	0.29		0.29	0.15	0.45	0.45	0.13	0.41
v/c Ratio		0.28	0.05		0.55	0.14	0.52	0.11	0.08	0.53
Control Delay		15.3	0.2		19.2	22.4	12.3	2.3	23.4	14.0
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		15.3	0.2		19.2	22.4	12.3	2.3	23.4	14.0
LOS		B	A		B	C	B	A	C	B
Approach Delay		12.3			19.2		11.5			14.4
Approach LOS		B			B		B			B

Intersection Summary

Cycle Length: 60
 Actuated Cycle Length: 42.4
 Natural Cycle: 55
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.55
 Intersection Signal Delay: 13.9
 Intersection Capacity Utilization 55.8%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service B






















Splits and Phases: 3: Redlands BI & Alessandro BI



Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
3: Redlands BI & Alessandro BI

Mitigated EP Conditions AM Peak Hour
HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	53	54	27	70	154	11	35	400	77	17	276	92
Future Volume (veh/h)	53	54	27	70	154	11	35	400	77	17	276	92
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	58	59	29	76	167	12	38	435	84	18	300	100
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	300	244	353	228	274	18	80	630	534	41	423	141
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	0.04	0.34	0.34	0.02	0.32	0.32
Sat Flow, veh/h	602	1096	1585	376	1234	79	1781	1870	1585	1781	1342	447
Grp Volume(v), veh/h	117	0	29	255	0	0	38	435	84	18	0	400
Grp Sat Flow(s),veh/h/ln	1698	0	1585	1689	0	0	1781	1870	1585	1781	0	1790
Q Serve(g_s), s	0.0	0.0	0.5	2.7	0.0	0.0	0.7	6.5	1.2	0.3	0.0	6.4
Cycle Q Clear(g_c), s	1.7	0.0	0.5	4.4	0.0	0.0	0.7	6.5	1.2	0.3	0.0	6.4
Prop In Lane	0.50		1.00	0.30		0.05	1.00		1.00	1.00		0.25
Lane Grp Cap(c), veh/h	544	0	353	520	0	0	80	630	534	41	0	564
V/C Ratio(X)	0.22	0.00	0.08	0.49	0.00	0.00	0.48	0.69	0.16	0.44	0.00	0.71
Avail Cap(c_a), veh/h	1035	0	883	1071	0	0	336	1360	1152	276	0	1240
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	10.4	0.0	10.0	11.4	0.0	0.0	15.1	9.3	7.5	15.6	0.0	9.8
Incr Delay (d2), s/veh	0.2	0.0	0.1	0.7	0.0	0.0	4.4	1.4	0.1	7.2	0.0	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.1	1.2	0.0	0.0	0.3	1.5	0.2	0.2	0.0	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.6	0.0	10.1	12.1	0.0	0.0	19.4	10.6	7.6	22.7	0.0	11.4
LnGrp LOS	B	A	B	B	A	A	B	B	A	C	A	B
Approach Vol, veh/h		146			255			557				418
Approach Delay, s/veh		10.5			12.1			10.8				11.9
Approach LOS		B			B			B				B
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.2	15.4		11.7	5.9	14.7		11.7				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.0	23.5		18.0	6.1	22.4		18.0				
Max Q Clear Time (g_c+I1), s	2.3	8.5		3.7	2.7	8.4		6.4				
Green Ext Time (p_c), s	0.0	2.3		0.5	0.0	1.8		1.0				
Intersection Summary												
HCM 6th Ctrl Delay				11.3								
HCM 6th LOS				B								

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
3: Redlands BI & Alessandro BI

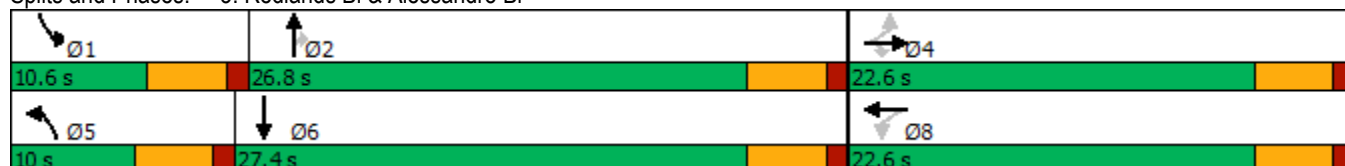
Mitigated EP Conditions PM Peak Hour
Timings

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations		↕	↗		↔	↖	↑	↗	↖	↕
Traffic Volume (vph)	79	136	22	47	60	36	274	67	40	393
Future Volume (vph)	79	136	22	47	60	36	274	67	40	393
Turn Type	Perm	NA	Perm	Perm	NA	Prot	NA	Perm	Prot	NA
Protected Phases		4			8	5	2		1	6
Permitted Phases	4		4	8				2		
Detector Phase	4	4	4	8	8	5	2	2	1	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5
Total Split (s)	22.6	22.6	22.6	22.6	22.6	10.0	26.8	26.8	10.6	27.4
Total Split (%)	37.7%	37.7%	37.7%	37.7%	37.7%	16.7%	44.7%	44.7%	17.7%	45.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	Min	None	Min
Act Effct Green (s)		12.0	12.0		12.0	6.0	18.4	18.4	6.4	18.6
Actuated g/C Ratio		0.28	0.28		0.28	0.14	0.42	0.42	0.15	0.43
v/c Ratio		0.51	0.04		0.31	0.16	0.36	0.10	0.16	0.59
Control Delay		19.1	0.2		14.7	23.4	12.4	1.8	22.8	15.0
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		19.1	0.2		14.7	23.4	12.4	1.8	22.8	15.0
LOS		B	A		B	C	B	A	C	B
Approach Delay		17.4			14.7		11.6			15.7
Approach LOS		B			B		B			B

Intersection Summary

Cycle Length: 60
 Actuated Cycle Length: 43.3
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.59
 Intersection Signal Delay: 14.7
 Intersection LOS: B
 Intersection Capacity Utilization 61.6%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 3: Redlands BI & Alessandro BI



Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
3: Redlands BI & Alessandro BI

Mitigated EP Conditions PM Peak Hour
HCM 6th Signalized Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	79	136	22	47	60	18	36	274	67	40	393	56
Future Volume (veh/h)	79	136	22	47	60	18	36	274	67	40	393	56
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	82	142	23	49	62	19	38	285	70	42	409	58
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	252	241	309	199	146	33	79	646	547	86	560	79
Arrive On Green	0.19	0.19	0.19	0.19	0.19	0.19	0.04	0.35	0.35	0.05	0.35	0.35
Sat Flow, veh/h	526	1239	1585	247	752	171	1781	1870	1585	1781	1602	227
Grp Volume(v), veh/h	224	0	23	130	0	0	38	285	70	42	0	467
Grp Sat Flow(s),veh/h/ln	1765	0	1585	1169	0	0	1781	1870	1585	1781	0	1829
Q Serve(g_s), s	0.0	0.0	0.4	0.4	0.0	0.0	0.7	3.9	1.0	0.8	0.0	7.3
Cycle Q Clear(g_c), s	3.6	0.0	0.4	4.1	0.0	0.0	0.7	3.9	1.0	0.8	0.0	7.3
Prop In Lane	0.37		1.00	0.38		0.15	1.00		1.00	1.00		0.12
Lane Grp Cap(c), veh/h	494	0	309	379	0	0	79	646	547	86	0	639
V/C Ratio(X)	0.45	0.00	0.07	0.34	0.00	0.00	0.48	0.44	0.13	0.49	0.00	0.73
Avail Cap(c_a), veh/h	1072	0	874	923	0	0	299	1271	1077	331	0	1277
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.1	0.0	10.8	11.7	0.0	0.0	15.3	8.3	7.4	15.2	0.0	9.3
Incr Delay (d2), s/veh	0.7	0.0	0.1	0.5	0.0	0.0	4.4	0.5	0.1	4.2	0.0	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	0.1	0.6	0.0	0.0	0.3	0.8	0.2	0.3	0.0	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.8	0.0	10.9	12.2	0.0	0.0	19.7	8.8	7.5	19.4	0.0	11.0
LnGrp LOS	B	A	B	B	A	A	B	A	A	B	A	B
Approach Vol, veh/h		247			130			393			509	
Approach Delay, s/veh		12.6			12.2			9.6			11.7	
Approach LOS		B			B			A			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.1	15.8		10.9	6.0	16.0		10.9				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	6.1	22.3		18.1	5.5	22.9		18.1				
Max Q Clear Time (g_c+I1), s	2.8	5.9		5.6	2.7	9.3		6.1				
Green Ext Time (p_c), s	0.0	1.5		1.0	0.0	2.1		0.4				
Intersection Summary												
HCM 6th Ctrl Delay				11.3								
HCM 6th LOS				B								

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

EAC CONDITIONS

Redlands Alessandro TIA
1: Wilmot St & Alessandro BI

EAC Conditions AM Peak Hour
HCM 6th TWSC

Intersection												
Int Delay, s/veh	1.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	20	133	7	6	333	3	11	6	22	7	4	24
Future Vol, veh/h	20	133	7	6	333	3	11	6	22	7	4	24
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	143	8	6	358	3	12	6	24	8	4	26

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	361	0	0	151	0	0	578	564	147	578	567	360
Stage 1	-	-	-	-	-	-	191	191	-	372	372	-
Stage 2	-	-	-	-	-	-	387	373	-	206	195	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1198	-	-	1430	-	-	427	435	900	427	433	684
Stage 1	-	-	-	-	-	-	811	742	-	648	619	-
Stage 2	-	-	-	-	-	-	637	618	-	796	739	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1198	-	-	1430	-	-	400	424	900	403	422	684
Mov Cap-2 Maneuver	-	-	-	-	-	-	400	424	-	403	422	-
Stage 1	-	-	-	-	-	-	795	727	-	635	616	-
Stage 2	-	-	-	-	-	-	606	615	-	753	724	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1			0.1			11.6			11.8		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	590	1198	-	-	1430	-	-	565
HCM Lane V/C Ratio	0.071	0.018	-	-	0.005	-	-	0.067
HCM Control Delay (s)	11.6	8.1	0	-	7.5	0	-	11.8
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.2	0.1	-	-	0	-	-	0.2

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
2: Redlands Bl & Cottonwood Av

EAC Conditions AM Peak Hour
Timings



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗	↖	↑	↑	↗
Traffic Volume (vph)	48	55	40	542	364	36
Future Volume (vph)	48	55	40	542	364	36
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	22.5	22.5	11.5	22.5	36.5	36.5
Total Split (s)	23.0	23.0	12.0	52.0	40.0	40.0
Total Split (%)	30.7%	30.7%	16.0%	69.3%	53.3%	53.3%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	Max	Max	Max
Act Effect Green (s)	7.8	7.8	7.3	51.7	47.0	47.0
Actuated g/C Ratio	0.12	0.12	0.11	0.80	0.73	0.73
v/c Ratio	0.24	0.24	0.21	0.38	0.28	0.03
Control Delay	28.2	10.8	28.5	3.5	6.1	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.2	10.8	28.5	3.5	6.1	2.7
LOS	C	B	C	A	A	A
Approach Delay	18.9			5.3	5.8	
Approach LOS	B			A	A	

Intersection Summary

Cycle Length: 75
 Actuated Cycle Length: 64.6
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.38
 Intersection Signal Delay: 6.7
 Intersection LOS: A
 Intersection Capacity Utilization 41.0%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 2: Redlands Bl & Cottonwood Av



Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
2: Redlands Bl & Cottonwood Av

EAC Conditions AM Peak Hour
HCM 6th Signalized Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	48	55	40	542	364	36
Future Volume (veh/h)	48	55	40	542	364	36
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	51	58	42	571	383	38
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	170	152	104	1450	1220	1034
Arrive On Green	0.10	0.10	0.06	0.78	0.65	0.65
Sat Flow, veh/h	1781	1585	1781	1870	1870	1585
Grp Volume(v), veh/h	51	58	42	571	383	38
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1870	1870	1585
Q Serve(g_s), s	1.7	2.1	1.4	6.1	5.5	0.5
Cycle Q Clear(g_c), s	1.7	2.1	1.4	6.1	5.5	0.5
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	170	152	104	1450	1220	1034
V/C Ratio(X)	0.30	0.38	0.41	0.39	0.31	0.04
Avail Cap(c_a), veh/h	547	486	230	1450	1220	1034
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.1	26.3	28.1	2.3	4.7	3.8
Incr Delay (d2), s/veh	1.0	1.6	2.5	0.8	0.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.1	0.6	0.4	1.3	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	27.0	27.9	30.7	3.1	5.4	3.9
LnGrp LOS	C	C	C	A	A	A
Approach Vol, veh/h				613	421	
Approach Delay, s/veh				5.0	5.2	
Approach LOS				A	A	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		52.0		9.9	7.6	44.4
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		48.0		19.0	8.0	36.0
Max Q Clear Time (g_c+I1), s		8.1		4.1	3.4	7.5
Green Ext Time (p_c), s		3.6		0.2	0.0	2.2
Intersection Summary						
HCM 6th Ctrl Delay			7.2			
HCM 6th LOS			A			

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
3: Redlands BI & Alessandro BI

EAC Conditions AM Peak Hour
HCM 6th AWSC

Intersection

Intersection Delay, s/veh 84.5

Intersection LOS F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕		↕			↕	↕		↕	
Traffic Vol, veh/h	59	62	30	84	216	64	21	432	87	26	305	103
Future Vol, veh/h	59	62	30	84	216	64	21	432	87	26	305	103
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	64	67	33	91	235	70	23	470	95	28	332	112
Number of Lanes	0	1	1	0	1	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	2
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	1	2	2	1
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	2	1	1	2
HCM Control Delay	17.9	64.2	100.7	104.5
HCM LOS	C	F	F	F

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	5%	0%	49%	0%	23%	6%
Vol Thru, %	95%	0%	51%	0%	59%	70%
Vol Right, %	0%	100%	0%	100%	18%	24%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	453	87	121	30	364	434
LT Vol	21	0	59	0	84	26
Through Vol	432	0	62	0	216	305
RT Vol	0	87	0	30	64	103
Lane Flow Rate	492	95	132	33	396	472
Geometry Grp	7	7	7	7	6	6
Degree of Util (X)	1.142	0.2	0.359	0.081	0.947	1.101
Departure Headway (Hd)	8.736	7.984	10.561	9.568	9.24	8.84
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	419	452	343	377	396	415
Service Time	6.436	5.684	8.261	7.268	7.24	6.84
HCM Lane V/C Ratio	1.174	0.21	0.385	0.088	1	1.137
HCM Control Delay	117.6	12.7	19.1	13.1	64.2	104.5
HCM Lane LOS	F	B	C	B	F	F
HCM 95th-tile Q	17.4	0.7	1.6	0.3	10.5	15.8

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
4: Redlands Bl & Cactus Av

EAC Conditions AM Peak Hour
HCM 6th AWSC

Intersection

Intersection Delay, s/veh 17.9

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕	↗		↕			↕↕	↗		↗	↗
Traffic Vol, veh/h	148	7	77	1	15	22	23	381	0	3	308	129
Future Vol, veh/h	148	7	77	1	15	22	23	381	0	3	308	129
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	168	8	88	1	17	25	26	433	0	3	350	147
Number of Lanes	0	2	1	0	1	0	0	2	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	3	2	3
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	2	3	3	1
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	3	2	1	3
HCM Control Delay	13.6	11.8	16.9	21.6
HCM LOS	B	B	C	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	SBLn1	SBLn2
Vol Left, %	15%	0%	0%	98%	0%	0%	3%	1%	0%
Vol Thru, %	85%	100%	100%	2%	100%	0%	39%	95%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	58%	4%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	150	254	0	150	5	77	38	324	116
LT Vol	23	0	0	148	0	0	1	3	0
Through Vol	127	254	0	2	5	0	15	308	0
RT Vol	0	0	0	0	0	77	22	13	116
Lane Flow Rate	170	289	0	171	5	88	43	368	132
Geometry Grp	8	8	8	7	7	7	8	8	8
Degree of Util (X)	0.34	0.569	0	0.372	0.011	0.161	0.098	0.715	0.231
Departure Headway (Hd)	7.174	7.096	7.096	7.849	7.346	6.631	8.17	6.99	6.302
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	503	508	0	460	488	542	438	519	570
Service Time	4.908	4.83	4.83	5.585	5.082	4.366	5.924	4.723	4.035
HCM Lane V/C Ratio	0.338	0.569	0	0.372	0.01	0.162	0.098	0.709	0.232
HCM Control Delay	13.6	18.8	9.8	15.2	10.2	10.6	11.8	25.4	10.9
HCM Lane LOS	B	C	N	C	B	B	B	D	B
HCM 95th-tile Q	1.5	3.5	0	1.7	0	0.6	0.3	5.7	0.9

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
5: Merwin St & Alessandro Bl

EAC Conditions AM Peak Hour
HCM 6th TWSC

Intersection												
Int Delay, s/veh	1.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	149	17	2	235	1	56	0	8	0	0	4
Future Vol, veh/h	1	149	17	2	235	1	56	0	8	0	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	166	19	2	261	1	62	0	9	0	0	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	262	0	0	185	0	0	446	444	176	448	453	262
Stage 1	-	-	-	-	-	-	178	178	-	266	266	-
Stage 2	-	-	-	-	-	-	268	266	-	182	187	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1302	-	-	1390	-	-	523	508	867	521	503	777
Stage 1	-	-	-	-	-	-	824	752	-	739	689	-
Stage 2	-	-	-	-	-	-	738	689	-	820	745	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1302	-	-	1390	-	-	519	506	867	514	501	777
Mov Cap-2 Maneuver	-	-	-	-	-	-	519	506	-	514	501	-
Stage 1	-	-	-	-	-	-	823	751	-	738	688	-
Stage 2	-	-	-	-	-	-	732	688	-	811	744	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.1			12.6			9.7		
HCM LOS							B			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	546	1302	-	-	1390	-	-	777
HCM Lane V/C Ratio	0.13	0.001	-	-	0.002	-	-	0.006
HCM Control Delay (s)	12.6	7.8	0	-	7.6	0	-	9.7
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.4	0	-	-	0	-	-	0

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
1: Wilmot St & Alessandro BI

EAC Conditions PM Peak Hour
HCM 6th TWSC

Intersection												
Int Delay, s/veh	1.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	20	290	12	17	170	1	6	11	13	1	4	22
Future Vol, veh/h	20	290	12	17	170	1	6	11	13	1	4	22
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	23	337	14	20	198	1	7	13	15	1	5	26

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	199	0	0	351	0	0	644	629	344	643	636	199
Stage 1	-	-	-	-	-	-	390	390	-	239	239	-
Stage 2	-	-	-	-	-	-	254	239	-	404	397	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1373	-	-	1208	-	-	386	399	699	386	395	842
Stage 1	-	-	-	-	-	-	634	608	-	764	708	-
Stage 2	-	-	-	-	-	-	750	708	-	623	603	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1373	-	-	1208	-	-	360	383	699	357	379	842
Mov Cap-2 Maneuver	-	-	-	-	-	-	360	383	-	357	379	-
Stage 1	-	-	-	-	-	-	621	595	-	748	695	-
Stage 2	-	-	-	-	-	-	709	695	-	584	590	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	0.5		0.7		13.3		10.5	
HCM LOS					B		B	

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	469	1373	-	-	1208	-	-	684
HCM Lane V/C Ratio	0.074	0.017	-	-	0.016	-	-	0.046
HCM Control Delay (s)	13.3	7.7	0	-	8	0	-	10.5
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.2	0.1	-	-	0.1	-	-	0.1

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
2: Redlands Bl & Cottonwood Av

EAC Conditions PM Peak Hour
Timings



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗	↖	↑	↑	↗
Traffic Volume (vph)	32	36	29	399	568	62
Future Volume (vph)	32	36	29	399	568	62
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	22.5	22.5	11.5	22.5	36.5	36.5
Total Split (s)	23.0	23.0	12.0	52.0	40.0	40.0
Total Split (%)	30.7%	30.7%	16.0%	69.3%	53.3%	53.3%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	Max	Max	Max
Act Effect Green (s)	7.3	7.3	7.2	55.4	50.7	50.7
Actuated g/C Ratio	0.11	0.11	0.11	0.85	0.78	0.78
v/c Ratio	0.16	0.17	0.15	0.25	0.39	0.05
Control Delay	27.3	12.0	27.3	2.3	6.4	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.3	12.0	27.3	2.3	6.4	2.1
LOS	C	B	C	A	A	A
Approach Delay	19.2			4.0	5.9	
Approach LOS	B			A	A	

Intersection Summary

Cycle Length: 75	
Actuated Cycle Length: 64.9	
Natural Cycle: 75	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.39	
Intersection Signal Delay: 6.0	Intersection LOS: A
Intersection Capacity Utilization 42.4%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: Redlands Bl & Cottonwood Av



Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
2: Redlands Bl & Cottonwood Av

EAC Conditions PM Peak Hour
HCM 6th Signalized Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↶	↷	↶	↷	↷	↷
Traffic Volume (veh/h)	32	36	29	399	568	62
Future Volume (veh/h)	32	36	29	399	568	62
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	32	36	29	403	574	63
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	140	125	79	1477	1271	1077
Arrive On Green	0.08	0.08	0.04	0.79	0.68	0.68
Sat Flow, veh/h	1781	1585	1781	1870	1870	1585
Grp Volume(v), veh/h	32	36	29	403	574	63
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1870	1870	1585
Q Serve(g_s), s	1.0	1.3	1.0	3.5	8.6	0.8
Cycle Q Clear(g_c), s	1.0	1.3	1.0	3.5	8.6	0.8
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	140	125	79	1477	1271	1077
V/C Ratio(X)	0.23	0.29	0.37	0.27	0.45	0.06
Avail Cap(c_a), veh/h	557	495	234	1477	1271	1077
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.3	26.4	28.2	1.7	4.5	3.3
Incr Delay (d2), s/veh	0.8	1.3	2.8	0.5	1.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.2	0.4	0.2	1.8	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	27.1	27.7	31.0	2.2	5.7	3.4
LnGrp LOS	C	C	C	A	A	A
Approach Vol, veh/h	68			432	637	
Approach Delay, s/veh	27.4			4.1	5.4	
Approach LOS	C			A	A	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		52.0		8.8	6.7	45.3
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		48.0		19.0	8.0	36.0
Max Q Clear Time (g_c+I1), s		5.5		3.3	3.0	10.6
Green Ext Time (p_c), s		2.3		0.1	0.0	3.6
Intersection Summary						
HCM 6th Ctrl Delay			6.2			
HCM 6th LOS			A			

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
3: Redlands BI & Alessandro BI

EAC Conditions PM Peak Hour
HCM 6th AWSC

Intersection

Intersection Delay, s/veh91.5

Intersection LOS F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔		↔			↔	↔		↔	
Traffic Vol, veh/h	88	185	24	56	96	54	18	290	81	90	434	63
Future Vol, veh/h	88	185	24	56	96	54	18	290	81	90	434	63
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	92	193	25	58	100	56	19	302	84	94	452	66
Number of Lanes	0	1	1	0	1	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	2
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	1	2	2	1
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	2	1	1	2
HCM Control Delay	27.5	23	26.6	191
HCM LOS	D	C	D	F

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	6%	0%	32%	0%	27%	15%
Vol Thru, %	94%	0%	68%	0%	47%	74%
Vol Right, %	0%	100%	0%	100%	26%	11%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	308	81	273	24	206	587
LT Vol	18	0	88	0	56	90
Through Vol	290	0	185	0	96	434
RT Vol	0	81	0	24	54	63
Lane Flow Rate	321	84	284	25	215	611
Geometry Grp	7	7	7	7	6	6
Degree of Util (X)	0.713	0.17	0.669	0.053	0.522	1.341
Departure Headway (Hd)	8.703	7.944	9.316	8.417	9.777	7.896
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	417	455	390	428	371	465
Service Time	6.403	5.644	7.016	6.117	7.777	5.948
HCM Lane V/C Ratio	0.77	0.185	0.728	0.058	0.58	1.314
HCM Control Delay	30.3	12.3	28.9	11.6	23	191
HCM Lane LOS	D	B	D	B	C	F
HCM 95th-tile Q	5.5	0.6	4.7	0.2	2.9	27.6

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
4: Redlands Bl & Cactus Av

EAC Conditions PM Peak Hour
HCM 6th AWSC

Intersection												
Intersection Delay, s/veh	15.1											
Intersection LOS	C											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕	↗		↕			↕↕	↗		↗	↗
Traffic Vol, veh/h	189	14	33	0	7	10	12	203	0	20	336	134
Future Vol, veh/h	189	14	33	0	7	10	12	203	0	20	336	134
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	199	15	35	0	7	11	13	214	0	21	354	141
Number of Lanes	0	2	1	0	1	0	0	2	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	3	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	3	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	1	3
HCM Control Delay	13.5	10.2	11.5	17.6
HCM LOS	B	B	B	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	SBLn1	SBLn2
Vol Left, %	15%	0%	0%	98%	0%	0%	0%	5%	0%
Vol Thru, %	85%	100%	100%	2%	100%	0%	41%	91%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	59%	4%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	80	135	0	194	9	33	17	369	121
LT Vol	12	0	0	189	0	0	0	20	0
Through Vol	68	135	0	5	9	0	7	336	0
RT Vol	0	0	0	0	0	33	10	13	121
Lane Flow Rate	84	142	0	204	10	35	18	389	127
Geometry Grp	8	8	8	7	7	7	8	8	8
Degree of Util (X)	0.158	0.266	0	0.4	0.018	0.057	0.036	0.663	0.191
Departure Headway (Hd)	6.802	6.726	6.726	7.072	6.578	5.868	7.146	6.137	5.429
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	526	533	0	508	543	609	498	587	659
Service Time	4.566	4.49	4.49	4.827	4.332	3.622	4.932	3.887	3.179
HCM Lane V/C Ratio	0.16	0.266	0	0.402	0.018	0.057	0.036	0.663	0.193
HCM Control Delay	10.9	11.9	9.5	14.5	9.5	9	10.2	20.2	9.5
HCM Lane LOS	B	B	N	B	A	A	B	C	A
HCM 95th-tile Q	0.6	1.1	0	1.9	0.1	0.2	0.1	4.9	0.7

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
5: Merwin St & Alessandro Bl

EAC Conditions PM Peak Hour
HCM 6th TWSC

Intersection												
Int Delay, s/veh	1.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	231	61	9	125	3	35	0	5	0	0	1
Future Vol, veh/h	2	231	61	9	125	3	35	0	5	0	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	251	66	10	136	3	38	0	5	0	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	139	0	0	317	0	0	446	447	284	449	479	138
Stage 1	-	-	-	-	-	-	288	288	-	158	158	-
Stage 2	-	-	-	-	-	-	158	159	-	291	321	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1445	-	-	1243	-	-	523	506	755	520	486	910
Stage 1	-	-	-	-	-	-	720	674	-	844	767	-
Stage 2	-	-	-	-	-	-	844	766	-	717	652	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1445	-	-	1243	-	-	518	500	755	512	481	910
Mov Cap-2 Maneuver	-	-	-	-	-	-	518	500	-	512	481	-
Stage 1	-	-	-	-	-	-	719	673	-	842	760	-
Stage 2	-	-	-	-	-	-	835	759	-	710	651	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.5			12.3			9		
HCM LOS							B			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	539	1445	-	-	1243	-	-	910
HCM Lane V/C Ratio	0.081	0.002	-	-	0.008	-	-	0.001
HCM Control Delay (s)	12.3	7.5	0	-	7.9	0	-	9
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	0

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

EACP CONDITIONS

Redlands Alessandro TIA
1: Wilmot St & Alessandro BI

EACP Conditions AM Peak Hour
HCM 6th TWSC

Intersection												
Int Delay, s/veh	1.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	20	140	7	10	342	4	11	6	23	8	4	24
Future Vol, veh/h	20	140	7	10	342	4	11	6	23	8	4	24
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	151	8	11	368	4	12	6	25	9	4	26

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	372	0	0	159	0	0	606	593	155	607	595	370
Stage 1	-	-	-	-	-	-	199	199	-	392	392	-
Stage 2	-	-	-	-	-	-	407	394	-	215	203	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1186	-	-	1420	-	-	409	418	891	408	417	676
Stage 1	-	-	-	-	-	-	803	736	-	633	606	-
Stage 2	-	-	-	-	-	-	621	605	-	787	733	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1186	-	-	1420	-	-	381	405	891	383	404	676
Mov Cap-2 Maneuver	-	-	-	-	-	-	381	405	-	383	404	-
Stage 1	-	-	-	-	-	-	787	721	-	620	600	-
Stage 2	-	-	-	-	-	-	587	599	-	743	718	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1			0.2			11.8			12.1		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	576	1186	-	-	1420	-	-	543
HCM Lane V/C Ratio	0.075	0.018	-	-	0.008	-	-	0.071
HCM Control Delay (s)	11.8	8.1	0	-	7.6	0	-	12.1
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.2	0.1	-	-	0	-	-	0.2

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
2: Redlands Bl & Cottonwood Av

EACP Conditions AM Peak Hour
Timings



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗	↖	↑	↑	↗
Traffic Volume (vph)	48	59	44	545	367	36
Future Volume (vph)	48	59	44	545	367	36
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	22.5	22.5	11.5	22.5	36.5	36.5
Total Split (s)	23.0	23.0	12.0	52.0	40.0	40.0
Total Split (%)	30.7%	30.7%	16.0%	69.3%	53.3%	53.3%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	Max	Max	Max
Act Effct Green (s)	7.8	7.8	7.4	51.7	44.7	44.7
Actuated g/C Ratio	0.12	0.12	0.11	0.80	0.69	0.69
v/c Ratio	0.24	0.25	0.23	0.38	0.30	0.03
Control Delay	28.2	10.7	28.8	3.6	7.1	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.2	10.7	28.8	3.6	7.1	2.7
LOS	C	B	C	A	A	A
Approach Delay	18.6			5.4	6.7	
Approach LOS	B			A	A	

Intersection Summary

Cycle Length: 75
 Actuated Cycle Length: 64.6
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.38
 Intersection Signal Delay: 7.2
 Intersection Capacity Utilization 41.2%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service A

Splits and Phases: 2: Redlands Bl & Cottonwood Av



Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
2: Redlands Bl & Cottonwood Av

EACP Conditions AM Peak Hour
HCM 6th Signalized Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	48	59	44	545	367	36
Future Volume (veh/h)	48	59	44	545	367	36
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	51	62	46	574	386	38
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	172	153	110	1448	1212	1027
Arrive On Green	0.10	0.10	0.06	0.77	0.65	0.65
Sat Flow, veh/h	1781	1585	1781	1870	1870	1585
Grp Volume(v), veh/h	51	62	46	574	386	38
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1870	1870	1585
Q Serve(g_s), s	1.7	2.3	1.5	6.2	5.7	0.5
Cycle Q Clear(g_c), s	1.7	2.3	1.5	6.2	5.7	0.5
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	172	153	110	1448	1212	1027
V/C Ratio(X)	0.30	0.40	0.42	0.40	0.32	0.04
Avail Cap(c_a), veh/h	546	486	230	1448	1212	1027
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.0	26.3	28.0	2.3	4.8	3.9
Incr Delay (d2), s/veh	0.9	1.7	2.5	0.8	0.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.1	0.7	0.4	1.3	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	27.0	28.0	30.5	3.1	5.5	4.0
LnGrp LOS	C	C	C	A	A	A
Approach Vol, veh/h	113			620	424	
Approach Delay, s/veh	27.6			5.1	5.4	
Approach LOS	C			A	A	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		52.0		10.0	7.8	44.2
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		48.0		19.0	8.0	36.0
Max Q Clear Time (g_c+I1), s		8.2		4.3	3.5	7.7
Green Ext Time (p_c), s		3.6		0.2	0.0	2.2
Intersection Summary						
HCM 6th Ctrl Delay			7.4			
HCM 6th LOS			A			

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
3: Redlands BI & Alessandro BI

EACP Conditions AM Peak Hour
HCM 6th AWSC

Intersection

Intersection Delay, s/veh 99.2

Intersection LOS F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕		↕			↕	↕		↕	
Traffic Vol, veh/h	59	73	30	84	216	64	37	441	87	35	305	103
Future Vol, veh/h	59	73	30	84	216	64	37	441	87	35	305	103
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	64	79	33	91	235	70	40	479	95	38	332	112
Number of Lanes	0	1	1	0	1	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	1	2
HCM Control Delay	19	67.6	126.9	119.1
HCM LOS	C	F	F	F

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	8%	0%	45%	0%	23%	8%
Vol Thru, %	92%	0%	55%	0%	59%	69%
Vol Right, %	0%	100%	0%	100%	18%	23%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	478	87	132	30	364	443
LT Vol	37	0	59	0	84	35
Through Vol	441	0	73	0	216	305
RT Vol	0	87	0	30	64	103
Lane Flow Rate	520	95	143	33	396	482
Geometry Grp	7	7	7	7	6	6
Degree of Util (X)	1.222	0.203	0.392	0.081	0.957	1.141
Departure Headway (Hd)	8.914	8.145	10.777	9.803	9.527	9.079
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	410	444	336	368	384	404
Service Time	6.614	5.845	8.477	7.503	7.527	7.079
HCM Lane V/C Ratio	1.268	0.214	0.426	0.09	1.031	1.193
HCM Control Delay	147.6	12.9	20.3	13.4	67.6	119.1
HCM Lane LOS	F	B	C	B	F	F
HCM 95th-tile Q	20.3	0.8	1.8	0.3	10.7	17

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
4: Redlands Bl & Cactus Av

EACP Conditions AM Peak Hour
HCM 6th AWSC

Intersection

Intersection Delay, s/veh 17.5

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕	↕		↕			↕↕	↕		↕	↕
Traffic Vol, veh/h	151	8	79	1	15	23	23	383	0	3	308	129
Future Vol, veh/h	151	8	79	1	15	23	23	383	0	3	308	129
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	172	9	90	1	17	26	26	435	0	3	350	147
Number of Lanes	0	2	1	0	1	0	0	2	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	3	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	3	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	1	3
HCM Control Delay	13.7	11.9	17.1	20.5
HCM LOS	B	B	C	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	SBLn1	SBLn2
Vol Left, %	15%	0%	0%	98%	0%	0%	3%	1%	0%
Vol Thru, %	85%	100%	100%	2%	100%	0%	38%	99%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	59%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	151	255	0	154	5	79	39	311	129
LT Vol	23	0	0	151	0	0	1	3	0
Through Vol	128	255	0	3	5	0	15	308	0
RT Vol	0	0	0	0	0	79	23	0	129
Lane Flow Rate	171	290	0	175	6	90	44	353	147
Geometry Grp	8	8	8	7	7	7	8	8	8
Degree of Util (X)	0.342	0.574	0	0.381	0.012	0.166	0.101	0.693	0.258
Departure Headway (Hd)	7.199	7.122	7.122	7.856	7.354	6.638	8.188	7.057	6.341
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	500	508	0	459	487	540	437	512	567
Service Time	4.937	4.859	4.859	5.591	5.088	4.373	5.943	4.793	4.076
HCM Lane V/C Ratio	0.342	0.571	0	0.381	0.012	0.167	0.101	0.689	0.259
HCM Control Delay	13.7	19.1	9.9	15.4	10.2	10.7	11.9	24.3	11.3
HCM Lane LOS	B	C	N	C	B	B	B	C	B
HCM 95th-tile Q	1.5	3.6	0	1.8	0	0.6	0.3	5.3	1

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
5: Merwin St & Alessandro Bl

EACP Conditions AM Peak Hour
HCM 6th TWSC

Intersection												
Int Delay, s/veh	1.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	149	19	2	235	1	56	0	8	0	0	4
Future Vol, veh/h	1	149	19	2	235	1	56	0	8	0	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	166	21	2	261	1	62	0	9	0	0	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	262	0	0	187	0	0	447	445	177	449	455	262
Stage 1	-	-	-	-	-	-	179	179	-	266	266	-
Stage 2	-	-	-	-	-	-	268	266	-	183	189	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1302	-	-	1387	-	-	522	508	866	520	501	777
Stage 1	-	-	-	-	-	-	823	751	-	739	689	-
Stage 2	-	-	-	-	-	-	738	689	-	819	744	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1302	-	-	1387	-	-	518	506	866	513	499	777
Mov Cap-2 Maneuver	-	-	-	-	-	-	518	506	-	513	499	-
Stage 1	-	-	-	-	-	-	822	750	-	738	688	-
Stage 2	-	-	-	-	-	-	732	688	-	810	743	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.1			12.6			9.7		
HCM LOS							B			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	545	1302	-	-	1387	-	-	777
HCM Lane V/C Ratio	0.13	0.001	-	-	0.002	-	-	0.006
HCM Control Delay (s)	12.6	7.8	0	-	7.6	0	-	9.7
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.4	0	-	-	0	-	-	0

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
6: Redlands Bl & Dwy 1

EACP Conditions AM Peak Hour
HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕↗			↕
Traffic Vol, veh/h	0	50	426	16	0	419
Future Vol, veh/h	0	50	426	16	0	419
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	54	463	17	0	455

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	-	240	0	0	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	6.93	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.319	-	-	-
Pot Cap-1 Maneuver	0	762	-	-	0
Stage 1	0	-	-	-	0
Stage 2	0	-	-	-	0
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	-	762	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.1	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	-	762
HCM Lane V/C Ratio	-	-	0.071
HCM Control Delay (s)	-	-	10.1
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0.2

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
7: Dwy 2 & Alessandro BI

EACP Conditions AM Peak Hour
HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↑		↗
Traffic Vol, veh/h	163	41	0	348	0	4
Future Vol, veh/h	163	41	0	348	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	177	45	0	378	0	4
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	-	-	-	200
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	-	-	0	-	0	841
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	841
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	0	9.3			
HCM LOS				A		
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT		
Capacity (veh/h)	841	-	-	-		
HCM Lane V/C Ratio	0.005	-	-	-		
HCM Control Delay (s)	9.3	-	-	-		
HCM Lane LOS	A	-	-	-		
HCM 95th %tile Q(veh)	0	-	-	-		

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
1: Wilmot St & Alessandro BI

EACP Conditions PM Peak Hour
HCM 6th TWSC

Intersection												
Int Delay, s/veh	1.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	20	299	12	22	182	3	6	11	15	3	4	22
Future Vol, veh/h	20	299	12	22	182	3	6	11	15	3	4	22
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	23	348	14	26	212	3	7	13	17	3	5	26

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	215	0	0	362	0	0	682	668	355	682	674	214
Stage 1	-	-	-	-	-	-	401	401	-	266	266	-
Stage 2	-	-	-	-	-	-	281	267	-	416	408	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1355	-	-	1197	-	-	364	379	689	364	376	826
Stage 1	-	-	-	-	-	-	626	601	-	739	689	-
Stage 2	-	-	-	-	-	-	726	688	-	614	597	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1355	-	-	1197	-	-	337	362	689	333	359	826
Mov Cap-2 Maneuver	-	-	-	-	-	-	337	362	-	333	359	-
Stage 1	-	-	-	-	-	-	613	588	-	723	672	-
Stage 2	-	-	-	-	-	-	681	671	-	573	584	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.5			0.9			13.6			11.1		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	457	1355	-	-	1197	-	-	620
HCM Lane V/C Ratio	0.081	0.017	-	-	0.021	-	-	0.054
HCM Control Delay (s)	13.6	7.7	0	-	8.1	0	-	11.1
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.3	0.1	-	-	0.1	-	-	0.2

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
2: Redlands Bl & Cottonwood Av

EACP Conditions PM Peak Hour
Timings



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗	↖	↑	↑	↗
Traffic Volume (vph)	32	42	34	402	572	62
Future Volume (vph)	32	42	34	402	572	62
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	22.5	22.5	11.5	22.5	36.5	36.5
Total Split (s)	23.0	23.0	12.0	52.0	40.0	40.0
Total Split (%)	30.7%	30.7%	16.0%	69.3%	53.3%	53.3%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	Max	Max	Max
Act Effct Green (s)	7.3	7.3	7.3	54.7	50.0	50.0
Actuated g/C Ratio	0.11	0.11	0.11	0.85	0.78	0.78
v/c Ratio	0.16	0.19	0.17	0.26	0.40	0.05
Control Delay	27.2	11.7	27.5	2.3	6.4	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.2	11.7	27.5	2.3	6.4	2.1
LOS	C	B	C	A	A	A
Approach Delay	18.4			4.3	6.0	
Approach LOS	B			A	A	

Intersection Summary

Cycle Length: 75
 Actuated Cycle Length: 64.1
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.40
 Intersection Signal Delay: 6.1
 Intersection Capacity Utilization 42.6%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service A

Splits and Phases: 2: Redlands Bl & Cottonwood Av



Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
2: Redlands Bl & Cottonwood Av

EACP Conditions PM Peak Hour
HCM 6th Signalized Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↶	↷	↶	↷	↷	↷
Traffic Volume (veh/h)	32	42	34	402	572	62
Future Volume (veh/h)	32	42	34	402	572	62
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	32	42	34	406	578	63
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	146	130	90	1472	1255	1064
Arrive On Green	0.08	0.08	0.05	0.79	0.67	0.67
Sat Flow, veh/h	1781	1585	1781	1870	1870	1585
Grp Volume(v), veh/h	32	42	34	406	578	63
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1870	1870	1585
Q Serve(g_s), s	1.0	1.5	1.1	3.6	9.0	0.8
Cycle Q Clear(g_c), s	1.0	1.5	1.1	3.6	9.0	0.8
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	146	130	90	1472	1255	1064
V/C Ratio(X)	0.22	0.32	0.38	0.28	0.46	0.06
Avail Cap(c_a), veh/h	555	494	234	1472	1255	1064
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.2	26.4	28.0	1.8	4.8	3.4
Incr Delay (d2), s/veh	0.7	1.4	2.6	0.5	1.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.1	0.5	0.2	1.9	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	26.9	27.8	30.7	2.2	6.0	3.5
LnGrp LOS	C	C	C	A	A	A
Approach Vol, veh/h	74			440	641	
Approach Delay, s/veh	27.4			4.4	5.8	
Approach LOS	C			A	A	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		52.0		9.0	7.1	44.9
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		48.0		19.0	8.0	36.0
Max Q Clear Time (g_c+I1), s		5.6		3.5	3.1	11.0
Green Ext Time (p_c), s		2.3		0.1	0.0	3.6
Intersection Summary						
HCM 6th Ctrl Delay			6.6			
HCM 6th LOS			A			

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
3: Redlands BI & Alessandro BI

EACP Conditions PM Peak Hour
HCM 6th AWSC

Intersection

Intersection Delay, s/veh105.3

Intersection LOS F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔		↔			↔	↔		↔	
Traffic Vol, veh/h	88	200	24	56	96	54	38	301	81	102	434	63
Future Vol, veh/h	88	200	24	56	96	54	38	301	81	102	434	63
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	92	208	25	58	100	56	40	314	84	106	452	66
Number of Lanes	0	1	1	0	1	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	1	2
HCM Control Delay	31.5	24.5	34.1	221.5
HCM LOS	D	C	D	F

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	11%	0%	31%	0%	27%	17%
Vol Thru, %	89%	0%	69%	0%	47%	72%
Vol Right, %	0%	100%	0%	100%	26%	11%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	339	81	288	24	206	599
LT Vol	38	0	88	0	56	102
Through Vol	301	0	200	0	96	434
RT Vol	0	81	0	24	54	63
Lane Flow Rate	353	84	300	25	215	624
Geometry Grp	7	7	7	7	6	6
Degree of Util (X)	0.799	0.173	0.717	0.054	0.536	1.412
Departure Headway (Hd)	9.001	8.212	9.582	8.689	10.238	8.144
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	406	440	381	415	354	449
Service Time	6.701	5.912	7.282	6.389	8.238	6.223
HCM Lane V/C Ratio	0.869	0.191	0.787	0.06	0.607	1.39
HCM Control Delay	39.2	12.6	33.1	11.9	24.5	221.5
HCM Lane LOS	E	B	D	B	C	F
HCM 95th-tile Q	7	0.6	5.4	0.2	3	30.2

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
4: Redlands Bl & Cactus Av

EACP Conditions PM Peak Hour
HCM 6th AWSC

Intersection

Intersection Delay, s/veh 14.8

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕	↗		↕			↕↕	↗		↕	↗
Traffic Vol, veh/h	193	15	36	0	7	11	12	206	0	20	336	134
Future Vol, veh/h	193	15	36	0	7	11	12	206	0	20	336	134
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	203	16	38	0	7	12	13	217	0	21	354	141
Number of Lanes	0	2	1	0	1	0	0	2	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	3	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	3	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	1	3
HCM Control Delay	13.6	10.2	11.6	17
HCM LOS	B	B	B	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	SBLn1	SBLn2
Vol Left, %	15%	0%	0%	97%	0%	0%	0%	6%	0%
Vol Thru, %	85%	100%	100%	3%	100%	0%	39%	94%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	61%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	81	137	0	198	10	36	18	356	134
LT Vol	12	0	0	193	0	0	0	20	0
Through Vol	69	137	0	5	10	0	7	336	0
RT Vol	0	0	0	0	0	36	11	0	134
Lane Flow Rate	85	145	0	208	11	38	19	375	141
Geometry Grp	8	8	8	7	7	7	8	8	8
Degree of Util (X)	0.161	0.271	0	0.41	0.019	0.062	0.038	0.646	0.214
Departure Headway (Hd)	6.833	6.758	6.758	7.081	6.587	5.878	7.163	6.208	5.473
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	523	529	0	509	542	607	497	581	654
Service Time	4.598	4.523	4.523	4.837	4.342	3.632	4.95	3.958	3.223
HCM Lane V/C Ratio	0.163	0.274	0	0.409	0.02	0.063	0.038	0.645	0.216
HCM Control Delay	10.9	12	9.5	14.7	9.5	9	10.2	19.7	9.7
HCM Lane LOS	B	B	N	B	A	A	B	C	A
HCM 95th-tile Q	0.6	1.1	0	2	0.1	0.2	0.1	4.6	0.8

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
5: Merwin St & Alessandro Bl

EACP Conditions PM Peak Hour
HCM 6th TWSC

Intersection												
Int Delay, s/veh	1.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	231	63	9	125	3	35	0	5	0	0	1
Future Vol, veh/h	2	231	63	9	125	3	35	0	5	0	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	251	68	10	136	3	38	0	5	0	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	139	0	0	319	0	0	447	448	285	450	481	138
Stage 1	-	-	-	-	-	-	289	289	-	158	158	-
Stage 2	-	-	-	-	-	-	158	159	-	292	323	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1445	-	-	1241	-	-	522	506	754	519	485	910
Stage 1	-	-	-	-	-	-	719	673	-	844	767	-
Stage 2	-	-	-	-	-	-	844	766	-	716	650	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1445	-	-	1241	-	-	517	500	754	511	480	910
Mov Cap-2 Maneuver	-	-	-	-	-	-	517	500	-	511	480	-
Stage 1	-	-	-	-	-	-	718	672	-	842	760	-
Stage 2	-	-	-	-	-	-	835	759	-	709	649	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.5			12.3			9		
HCM LOS							B			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	538	1445	-	-	1241	-	-	910
HCM Lane V/C Ratio	0.081	0.002	-	-	0.008	-	-	0.001
HCM Control Delay (s)	12.3	7.5	0	-	7.9	0	-	9
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	0

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
6: Redlands Bl & Dwy 1

EACP Conditions PM Peak Hour
HCM 6th TWSC

Intersection

Int Delay, s/veh 0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕↗			↖
Traffic Vol, veh/h	0	64	286	21	0	514
Future Vol, veh/h	0	64	286	21	0	514
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	70	311	23	0	559

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	167	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	6.93	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.319	-
Pot Cap-1 Maneuver	0	849	-
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	849	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.6	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	-	849
HCM Lane V/C Ratio	-	-	0.082
HCM Control Delay (s)	-	-	9.6
HCM Lane LOS	-	-	A
HCM 95th %tile Q(veh)	-	-	0.3

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
7: Dwy 2 & Alessandro BI

EACP Conditions PM Peak Hour
HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↑		↗
Traffic Vol, veh/h	324	56	0	196	0	6
Future Vol, veh/h	324	56	0	196	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	352	61	0	213	0	7
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	-	-	-	383
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	-	-	0	-	0	664
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	664
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	0	10.5			
HCM LOS						B
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT		
Capacity (veh/h)	664	-	-	-		
HCM Lane V/C Ratio	0.01	-	-	-		
HCM Control Delay (s)	10.5	-	-	-		
HCM Lane LOS	B	-	-	-		
HCM 95th %tile Q(veh)	0	-	-	-		

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

EACP CONDITIONS WITH IMPROVEMENTS

Redlands Alessandro TIA
3: Redlands BI & Alessandro BI

Mitigated EACP Conditions AM Peak Hour
Timings

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations		↕	↗		↕	↖	↕	↗	↖	↗
Traffic Volume (vph)	59	73	30	84	216	37	441	87	35	305
Future Volume (vph)	59	73	30	84	216	37	441	87	35	305
Turn Type	Perm	NA	Perm	Perm	NA	Prot	NA	Perm	Prot	NA
Protected Phases		4			8	5	2		1	6
Permitted Phases	4		4	8				2		
Detector Phase	4	4	4	8	8	5	2	2	1	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5
Total Split (s)	23.0	23.0	23.0	23.0	23.0	9.6	27.4	27.4	9.6	27.4
Total Split (%)	38.3%	38.3%	38.3%	38.3%	38.3%	16.0%	45.7%	45.7%	16.0%	45.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	Min	None	Min
Act Effct Green (s)		15.3	15.3		15.3	5.6	16.8	16.8	5.6	16.8
Actuated g/C Ratio		0.34	0.34		0.34	0.12	0.38	0.38	0.12	0.38
v/c Ratio		0.30	0.05		0.70	0.18	0.69	0.14	0.17	0.64
Control Delay		15.9	0.2		23.5	25.8	19.0	3.3	25.8	16.9
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		15.9	0.2		23.5	25.8	19.0	3.3	25.8	16.9
LOS		B	A		C	C	B	A	C	B
Approach Delay		13.0			23.5		17.0			17.6
Approach LOS		B			C		B			B

Intersection Summary

Cycle Length: 60
 Actuated Cycle Length: 44.8
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.70
 Intersection Signal Delay: 18.3
 Intersection LOS: B
 Intersection Capacity Utilization 64.8%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 3: Redlands BI & Alessandro BI



Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
3: Redlands BI & Alessandro BI

Mitigated EACP Conditions AM Peak Hour
HCM 6th Signalized Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	59	73	30	84	216	64	37	441	87	35	305	103
Future Volume (veh/h)	59	73	30	84	216	64	37	441	87	35	305	103
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	64	79	33	91	235	70	40	479	95	38	332	112
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	280	299	468	191	326	88	79	623	528	76	444	150
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.04	0.33	0.33	0.04	0.33	0.33
Sat Flow, veh/h	519	1011	1585	283	1105	298	1781	1870	1585	1781	1338	451
Grp Volume(v), veh/h	143	0	33	396	0	0	40	479	95	38	0	444
Grp Sat Flow(s),veh/h/ln	1530	0	1585	1686	0	0	1781	1870	1585	1781	0	1789
Q Serve(g_s), s	0.0	0.0	0.6	5.7	0.0	0.0	0.9	9.4	1.7	0.9	0.0	9.1
Cycle Q Clear(g_c), s	2.4	0.0	0.6	8.8	0.0	0.0	0.9	9.4	1.7	0.9	0.0	9.1
Prop In Lane	0.45		1.00	0.23		0.18	1.00		1.00	1.00		0.25
Lane Grp Cap(c), veh/h	579	0	468	606	0	0	79	623	528	76	0	593
V/C Ratio(X)	0.25	0.00	0.07	0.65	0.00	0.00	0.50	0.77	0.18	0.50	0.00	0.75
Avail Cap(c_a), veh/h	796	0	713	860	0	0	221	1042	883	221	0	996
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.0	0.0	10.4	13.2	0.0	0.0	19.2	12.3	9.7	19.2	0.0	12.2
Incr Delay (d2), s/veh	0.2	0.0	0.1	1.2	0.0	0.0	4.9	2.0	0.2	5.0	0.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.2	2.6	0.0	0.0	0.4	2.8	0.4	0.4	0.0	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.3	0.0	10.5	14.4	0.0	0.0	24.1	14.3	9.9	24.2	0.0	14.1
LnGrp LOS	B	A	B	B	A	A	C	B	A	C	A	B
Approach Vol, veh/h		176			396			614				482
Approach Delay, s/veh		11.1			14.4			14.3				14.9
Approach LOS		B			B			B				B
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.3	18.2		16.7	6.3	18.1		16.7				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.1	22.9		18.5	5.1	22.9		18.5				
Max Q Clear Time (g_c+I1), s	2.9	11.4		4.4	2.9	11.1		10.8				
Green Ext Time (p_c), s	0.0	2.3		0.7	0.0	1.9		1.4				
Intersection Summary												
HCM 6th Ctrl Delay				14.2								
HCM 6th LOS				B								

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
3: Redlands BI & Alessandro BI

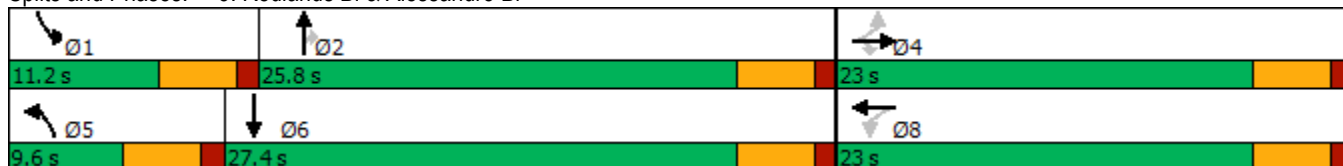
Mitigated EACP Conditions PM Peak Hour
Timings

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations		↕	↗		↕	↖	↕	↗	↖	↗
Traffic Volume (vph)	88	200	24	56	96	38	301	81	102	434
Future Volume (vph)	88	200	24	56	96	38	301	81	102	434
Turn Type	Perm	NA	Perm	Perm	NA	Prot	NA	Perm	Prot	NA
Protected Phases		4			8	5	2		1	6
Permitted Phases	4		4	8				2		
Detector Phase	4	4	4	8	8	5	2	2	1	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5
Total Split (s)	23.0	23.0	23.0	23.0	23.0	9.6	25.8	25.8	11.2	27.4
Total Split (%)	38.3%	38.3%	38.3%	38.3%	38.3%	16.0%	43.0%	43.0%	18.7%	45.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	Min	None	Min
Act Effct Green (s)		13.9	13.9		13.9	5.5	15.6	15.6	6.9	20.8
Actuated g/C Ratio		0.29	0.29		0.29	0.12	0.33	0.33	0.15	0.44
v/c Ratio		0.66	0.05		0.49	0.19	0.51	0.14	0.41	0.64
Control Delay		24.1	0.2		17.7	26.8	18.0	2.9	29.1	17.0
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		24.1	0.2		17.7	26.8	18.0	2.9	29.1	17.0
LOS		C	A		B	C	B	A	C	B
Approach Delay		22.3			17.7		15.9			19.0
Approach LOS		C			B		B			B

Intersection Summary

Cycle Length: 60
 Actuated Cycle Length: 47.5
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.66
 Intersection Signal Delay: 18.6
 Intersection LOS: B
 Intersection Capacity Utilization 72.7%
 ICU Level of Service C
 Analysis Period (min) 15






















Splits and Phases: 3: Redlands BI & Alessandro BI



Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
3: Redlands BI & Alessandro BI

Mitigated EACP Conditions PM Peak Hour
HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	88	200	24	56	96	54	38	301	81	102	434	63
Future Volume (veh/h)	88	200	24	56	96	54	38	301	81	102	434	63
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	92	208	25	58	100	56	40	314	84	106	452	66
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	221	333	405	158	182	80	80	593	502	155	573	84
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.26	0.04	0.32	0.32	0.09	0.36	0.36
Sat Flow, veh/h	400	1303	1585	165	714	311	1781	1870	1585	1781	1595	233
Grp Volume(v), veh/h	300	0	25	214	0	0	40	314	84	106	0	518
Grp Sat Flow(s),veh/h/ln	1703	0	1585	1190	0	0	1781	1870	1585	1781	0	1828
Q Serve(g_s), s	0.0	0.0	0.5	1.3	0.0	0.0	0.9	5.5	1.5	2.3	0.0	10.0
Cycle Q Clear(g_c), s	6.1	0.0	0.5	7.4	0.0	0.0	0.9	5.5	1.5	2.3	0.0	10.0
Prop In Lane	0.31		1.00	0.27		0.26	1.00		1.00	1.00		0.13
Lane Grp Cap(c), veh/h	554	0	405	420	0	0	80	593	502	155	0	656
V/C Ratio(X)	0.54	0.00	0.06	0.51	0.00	0.00	0.50	0.53	0.17	0.68	0.00	0.79
Avail Cap(c_a), veh/h	895	0	740	744	0	0	229	1005	852	301	0	1056
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.2	0.0	11.2	13.0	0.0	0.0	18.5	11.1	9.8	17.6	0.0	11.4
Incr Delay (d2), s/veh	0.8	0.0	0.1	1.0	0.0	0.0	4.8	0.7	0.2	5.3	0.0	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.0	0.1	1.3	0.0	0.0	0.4	1.5	0.4	0.9	0.0	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.0	0.0	11.2	14.0	0.0	0.0	23.2	11.8	9.9	22.8	0.0	13.5
LnGrp LOS	B	A	B	B	A	A	C	B	A	C	A	B
Approach Vol, veh/h		325			214			438			624	
Approach Delay, s/veh		13.8			14.0			12.5			15.1	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.9	17.1		14.6	6.3	18.7		14.6				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	6.7	21.3		18.5	5.1	22.9		18.5				
Max Q Clear Time (g_c+I1), s	4.3	7.5		8.1	2.9	12.0		9.4				
Green Ext Time (p_c), s	0.0	1.5		1.2	0.0	2.2		0.7				
Intersection Summary												
HCM 6th Ctrl Delay			14.0									
HCM 6th LOS			B									

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

APPENDIX D

SIGNAL WARRANT ANALYSIS SHEETS

EXISTING CONDITIONS

EXISTING CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: **AM**

Major Street: **Alessandro Blvd (EW)**

Minor Street: **Wilmot St (NS)**

Total of Both Approaches (VPH): **396**

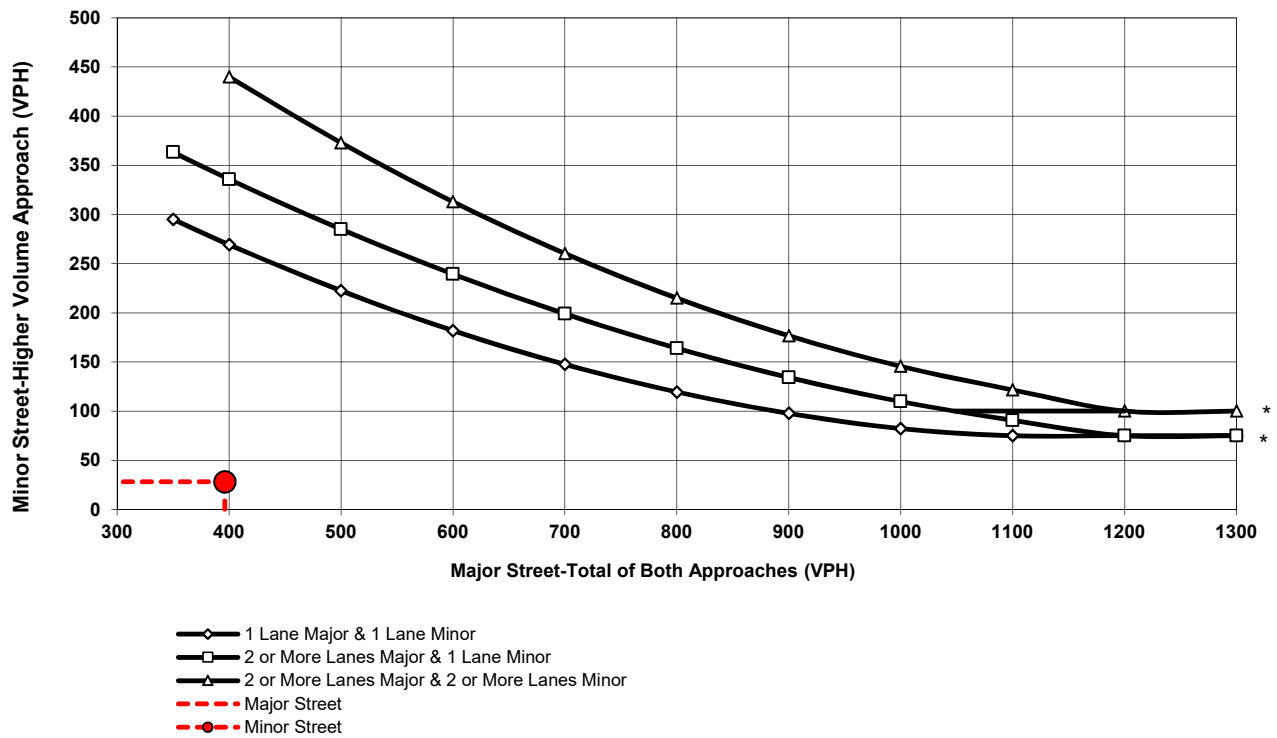
Higher Volume Approach (VPH): **28**

Number of Approach Lanes: **1**

Number of Approach Lanes: **1**

SIGNAL WARRANT NOT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:
100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**Existing Conditions
AM Peak Hour Volume Warrant
Alessandro Blvd/Wilmot St**

EXISTING CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: **PM**

Major Street: **Alessandro Blvd (EW)**

Minor Street: **Wilmot St (NS)**

Total of Both Approaches (VPH): **378**

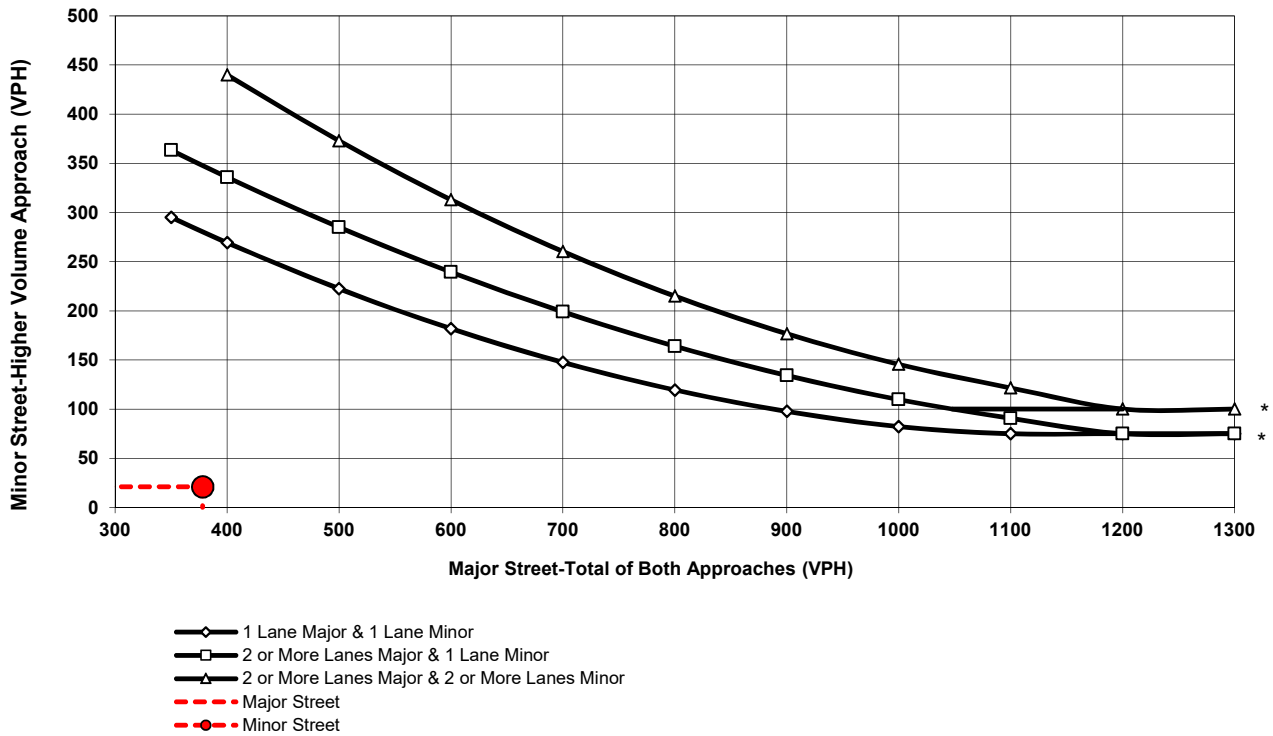
Higher Volume Approach (VPH): **21**

Number of Approach Lanes: **1**

Number of Approach Lanes: **1**

SIGNAL WARRANT NOT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:
100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**Existing Conditions
PM Peak Hour Volume Warrant
Alessandro Blvd/Wilmot St**

EXISTING CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: **AM**

Major Street: **Redlands Blvd (NS)**

Minor Street: **Cactus Ave (EW)**

Total of Both Approaches (VPH): **756**

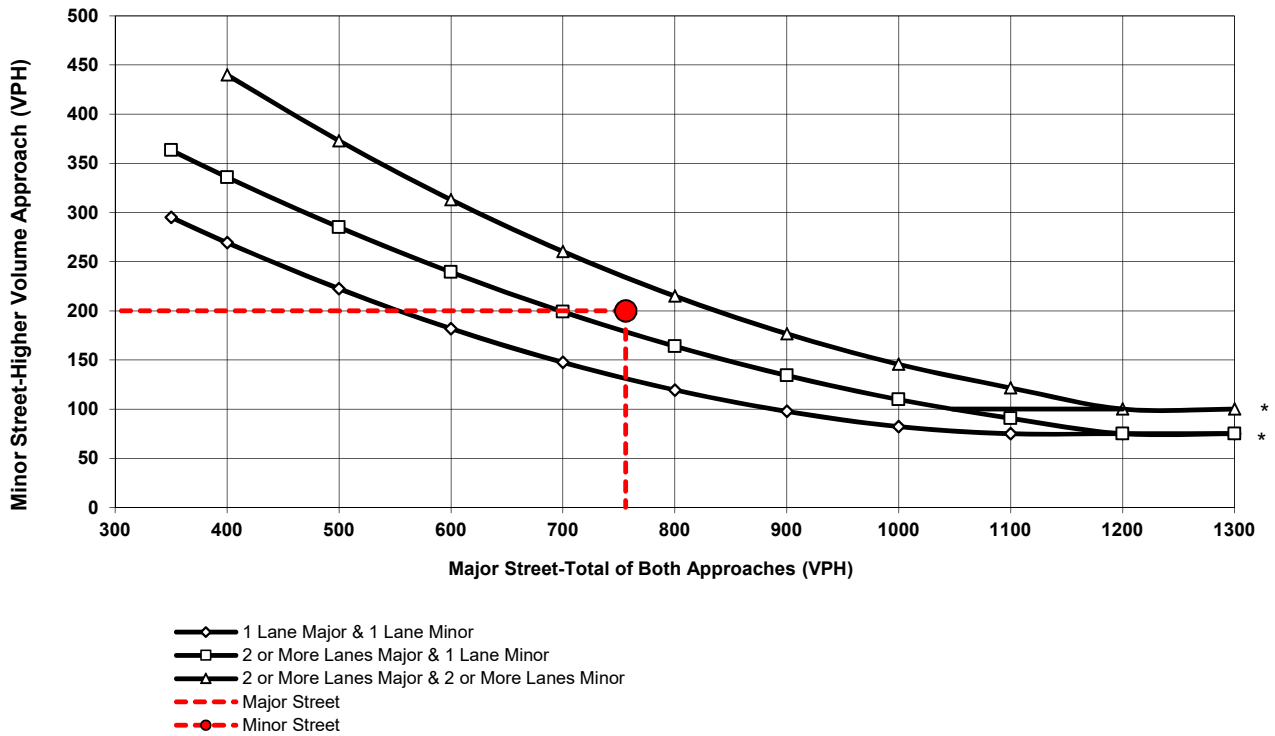
Higher Volume Approach (VPH): **200**

Number of Approach Lanes: **2**

Number of Approach Lanes: **2**

SIGNAL WARRANT NOT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:

100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**Existing Conditions
AM Peak Hour Volume Warrant
Cactus Ave/Redlands Blvd**

EXISTING CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: **AM**

Major Street: **Redlands Blvd (NS)**

Minor Street: **Cactus Ave (EW)**

Total of Both Approaches (VPH): **625**

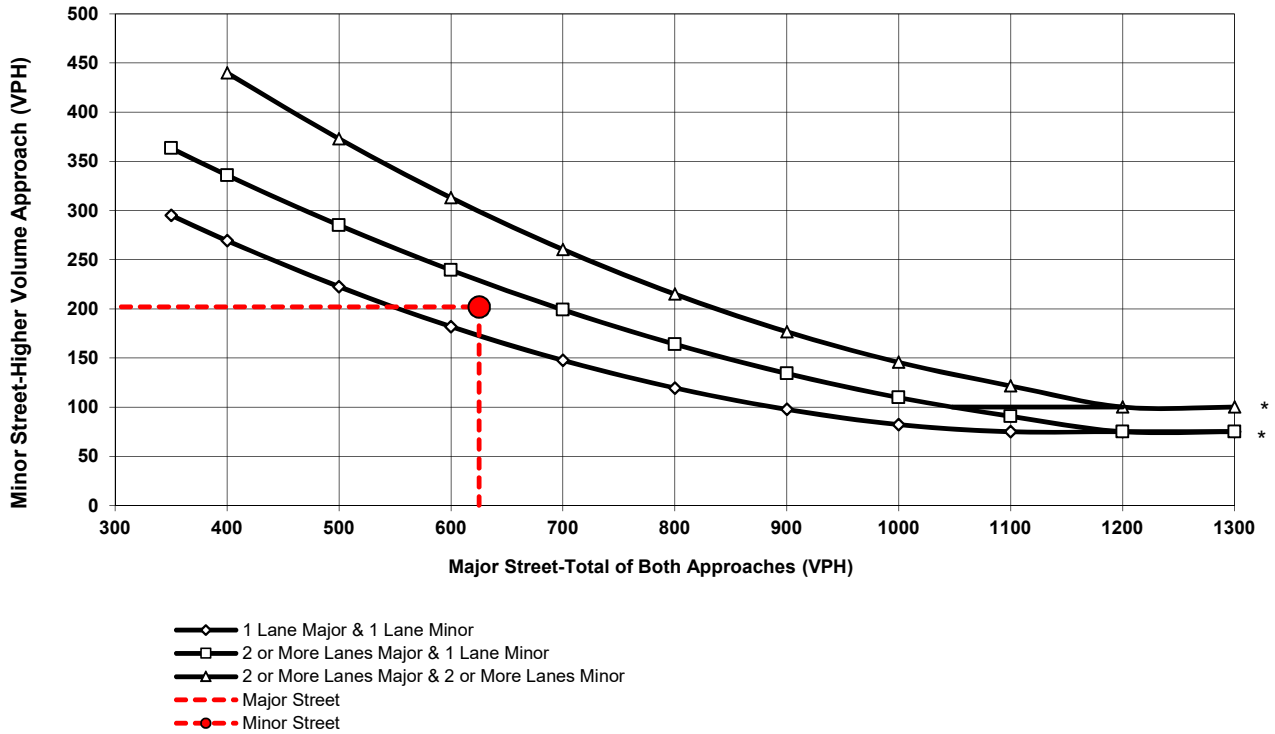
Higher Volume Approach (VPH): **202**

Number of Approach Lanes: **2**

Number of Approach Lanes: **2**

SIGNAL WARRANT NOT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:

100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**Existing Conditions
AM Peak Hour Volume Warrant
Cactus Ave/Redlands Blvd**

EXISTING CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: **AM**

Major Street: **Redlands Blvd (NS)**

Minor Street: **Alessandro Blvd (EW)**

Total of Both Approaches (VPH): **863**

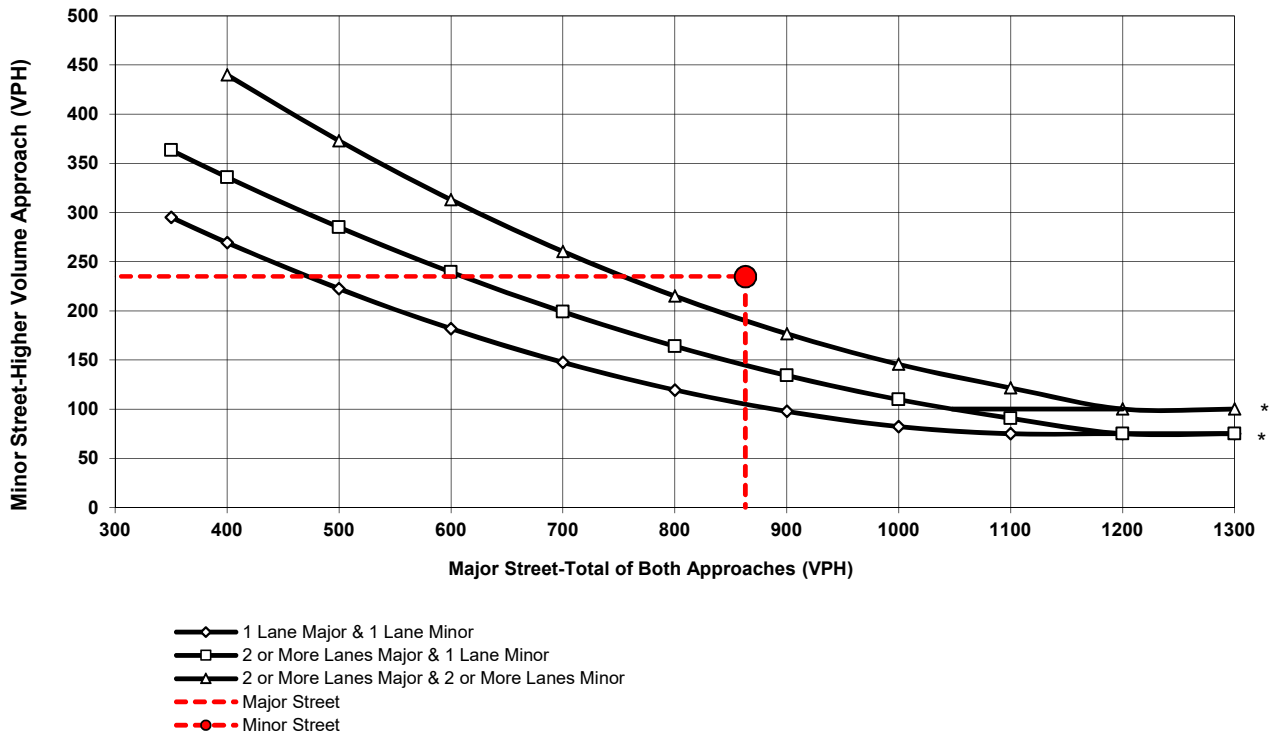
Higher Volume Approach (VPH): **235**

Number of Approach Lanes: **1**

Number of Approach Lanes: **1**

SIGNAL WARRANT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:
100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**Existing Conditions
AM Peak Hour Volume Warrant
Alessandro Blvd/Redlands Blvd**

EXISTING CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: **PM**

Major Street: **Redlands Blvd (NS)**

Minor Street: **Alessandro Blvd (EW)**

Total of Both Approaches (VPH): **823**

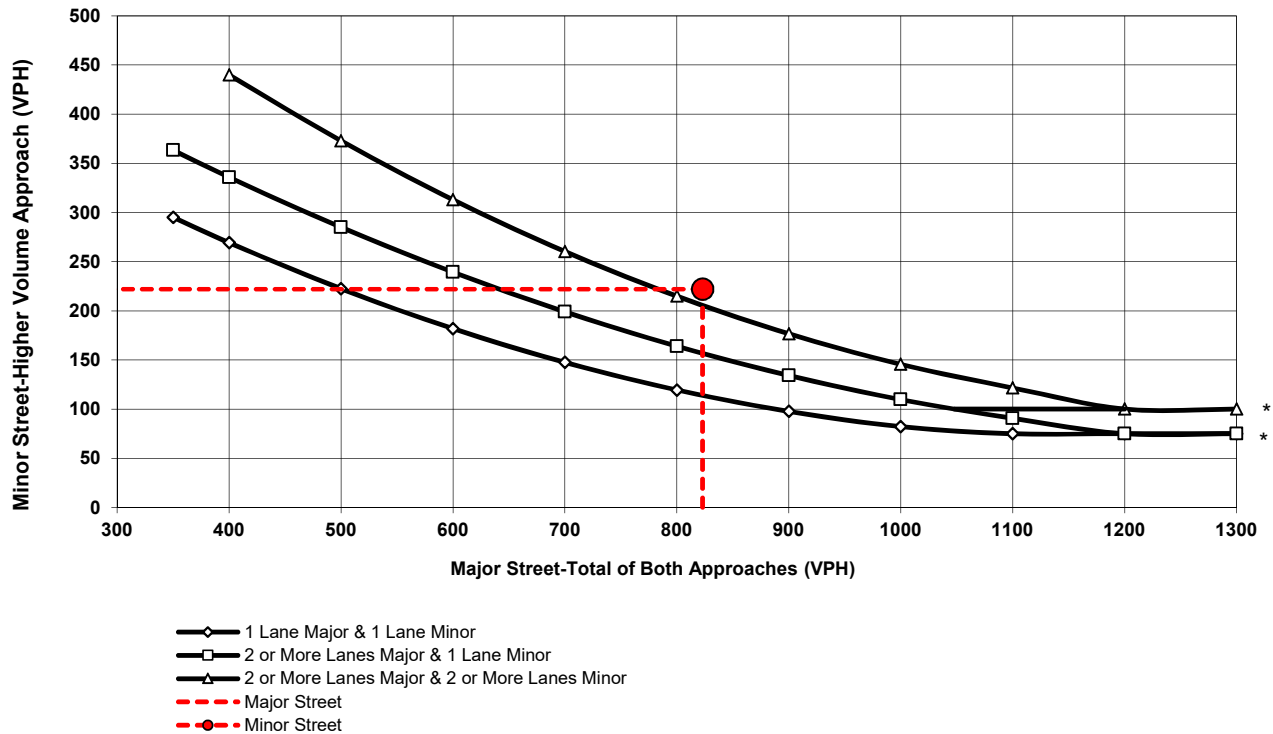
Higher Volume Approach (VPH): **222**

Number of Approach Lanes: **1**

Number of Approach Lanes: **1**

SIGNAL WARRANT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:
100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**Existing Conditions
PM Peak Hour Volume Warrant
Alessandro Blvd/Redlands Blvd**

EXISTING CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: **AM**

Major Street: **Alessandro Blvd (EW)**

Minor Street: **Merwin St (NS)**

Total of Both Approaches (VPH): **350**

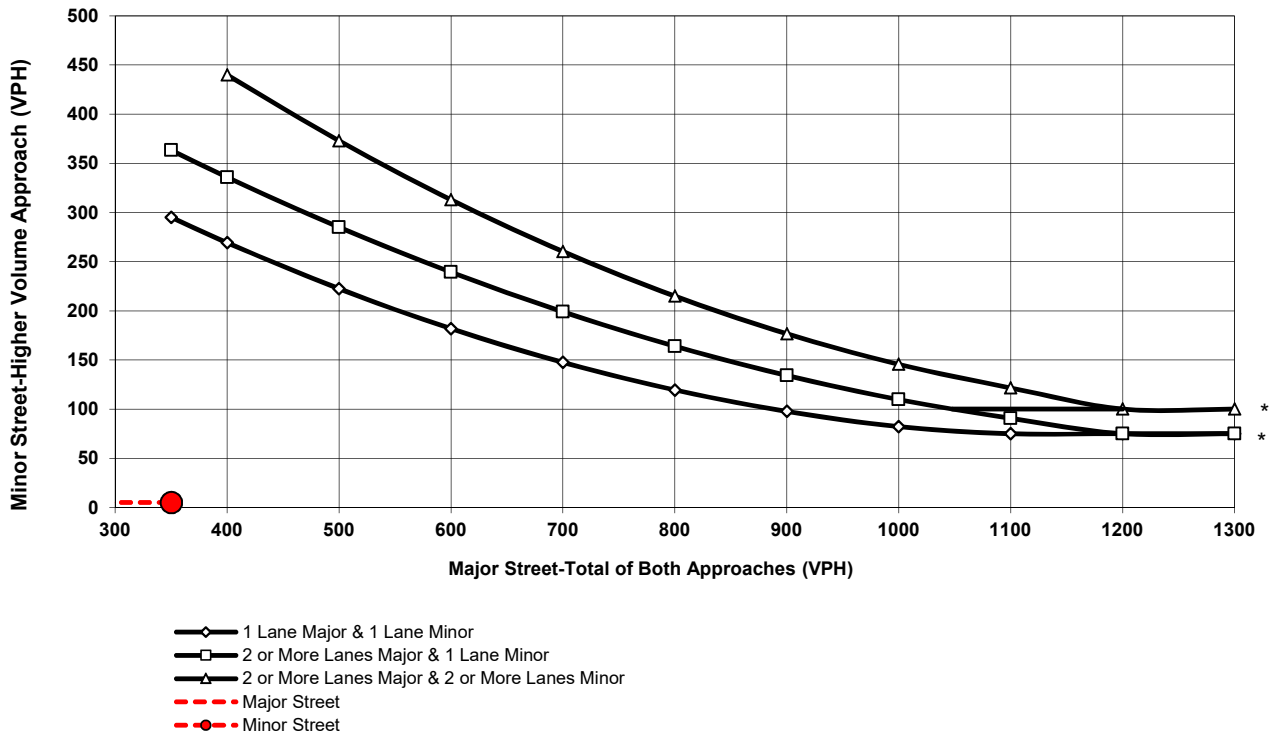
Higher Volume Approach (VPH): **5**

Number of Approach Lanes: **1**

Number of Approach Lanes: **1**

SIGNAL WARRANT NOT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:

100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**Existing Conditions
AM Peak Hour Volume Warrant
Alessandro Blvd/Merwin St**

EXISTING CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: **PM**

Major Street: **Alessandro Blvd (EW)**

Minor Street: **Merwin St (NS)**

Total of Both Approaches (VPH): **331**

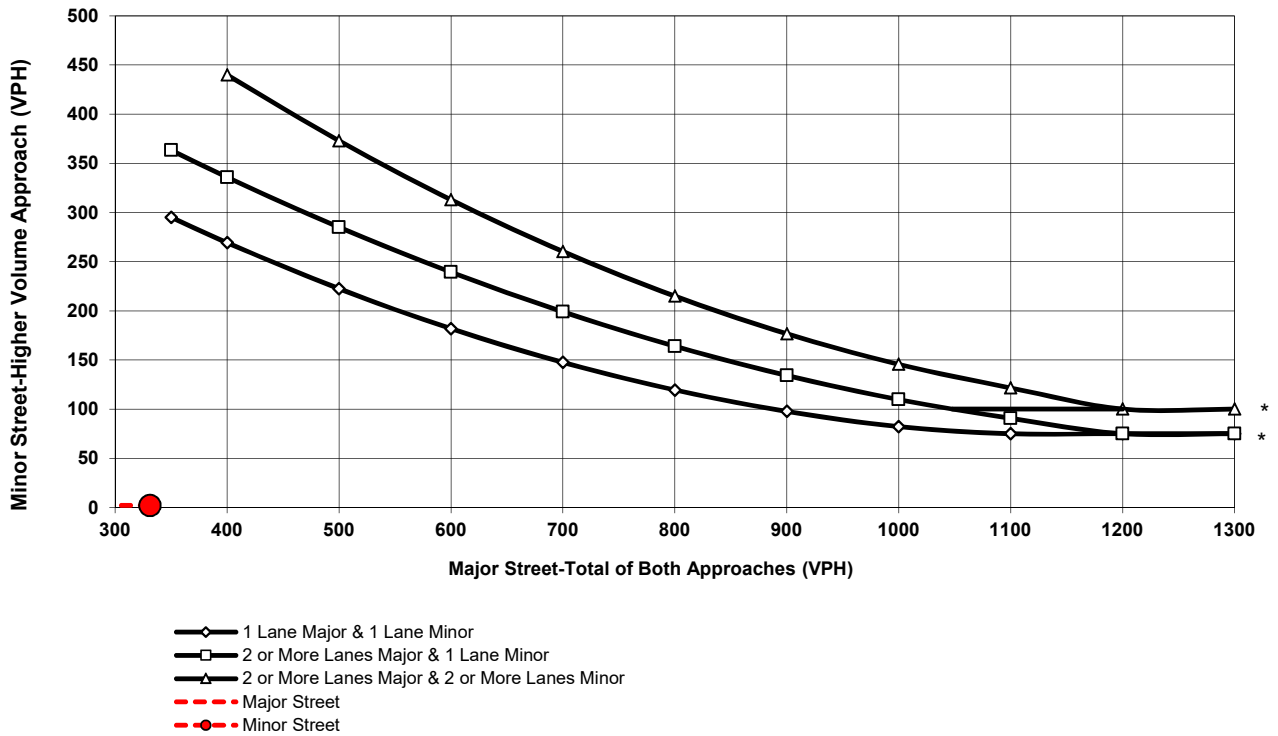
Higher Volume Approach (VPH): **2**

Number of Approach Lanes: **1**

Number of Approach Lanes: **1**

SIGNAL WARRANT NOT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:
100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**Existing Conditions
PM Peak Hour Volume Warrant
Alessandro Blvd/Merwin St**

EP CONDITIONS

EP CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: **AM**

Major Street: **Alessandro Blvd (EW)**

Minor Street: **Wilmot St (NS)**

Total of Both Approaches (VPH): **440**

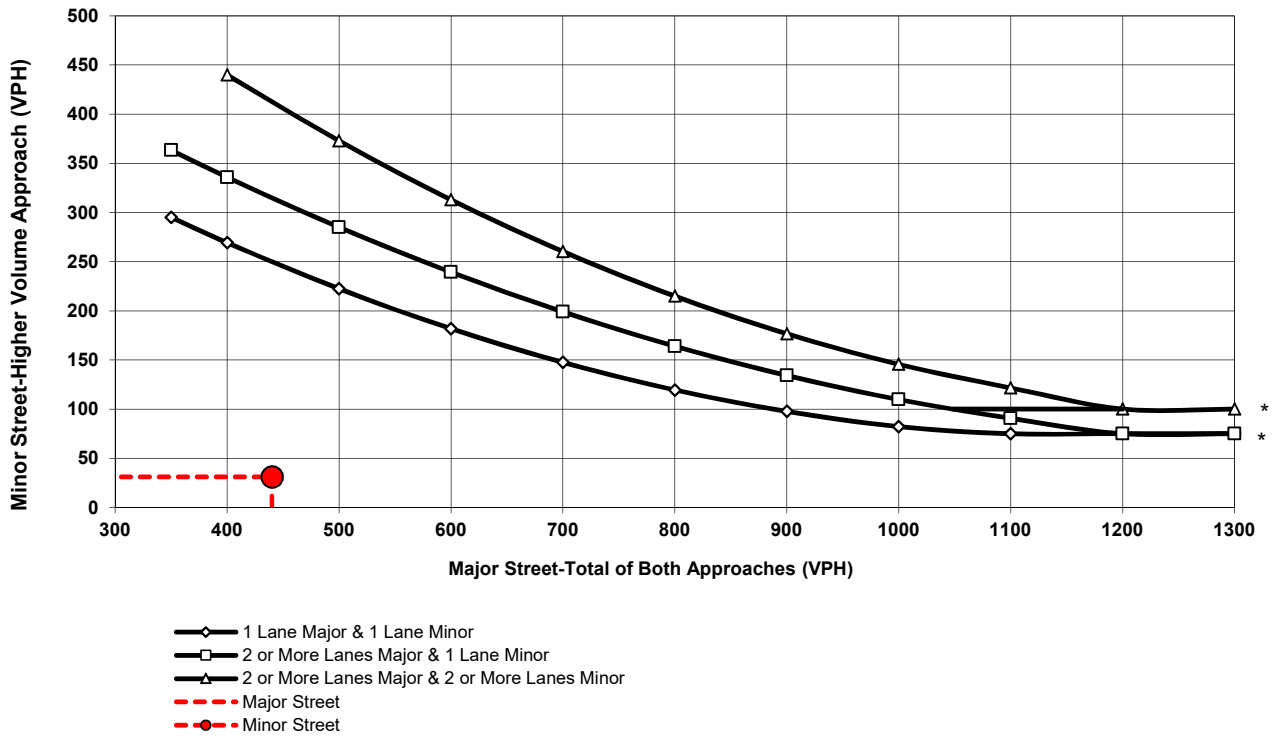
Higher Volume Approach (VPH): **31**

Number of Approach Lanes: **1**

Number of Approach Lanes: **1**

SIGNAL WARRANT NOT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:
100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**EP Conditions
AM Peak Hour Volume Warrant
Alessandro Blvd/Wilmot St**

EP CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: **PM**

Major Street: **Alessandro Blvd (EW)**

Minor Street: **Wilmot St (NS)**

Total of Both Approaches (VPH): **437**

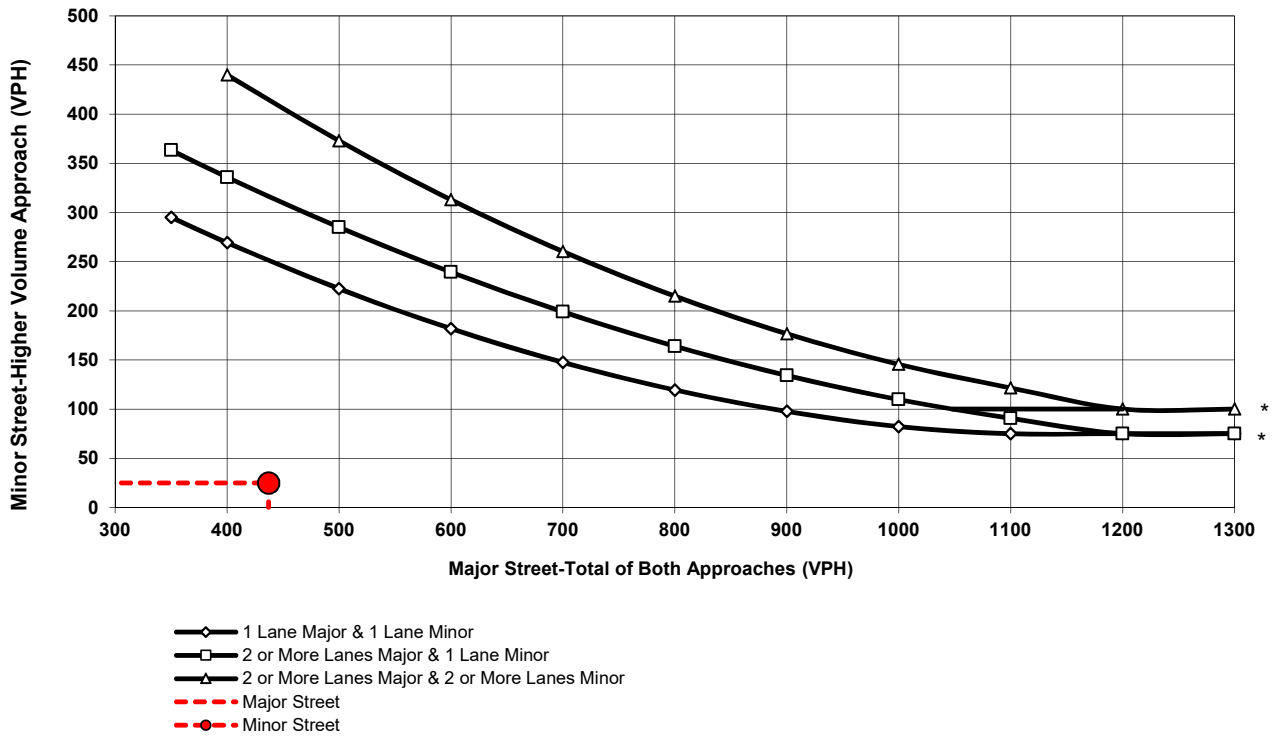
Higher Volume Approach (VPH): **25**

Number of Approach Lanes: **1**

Number of Approach Lanes: **1**

SIGNAL WARRANT NOT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:
100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**EP Conditions
PM Peak Hour Volume Warrant
Alessandro Blvd/Wilmot St**

EP CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: **AM**

Major Street: **Redlands Blvd (NS)**

Minor Street: **Cactus Ave (EW)**

Total of Both Approaches (VPH): **760**

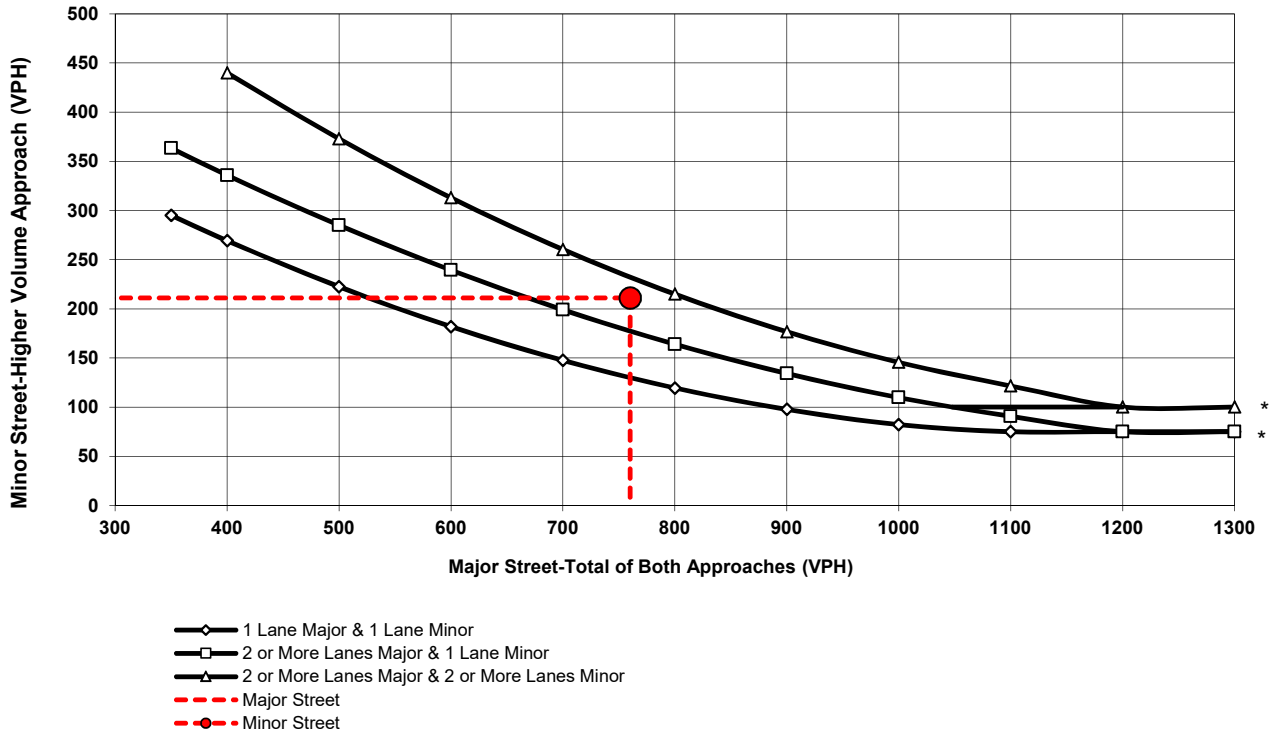
Higher Volume Approach (VPH): **211**

Number of Approach Lanes: **2**

Number of Approach Lanes: **2**

SIGNAL WARRANT NOT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:
100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**EP Conditions
AM Peak Hour Volume Warrant
Cactus Ave/Redlands Blvd**

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

EP CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: **PM**

Major Street: **Redlands Blvd (NS)**

Minor Street: **Cactus Ave (EW)**

Total of Both Approaches (VPH): **631**

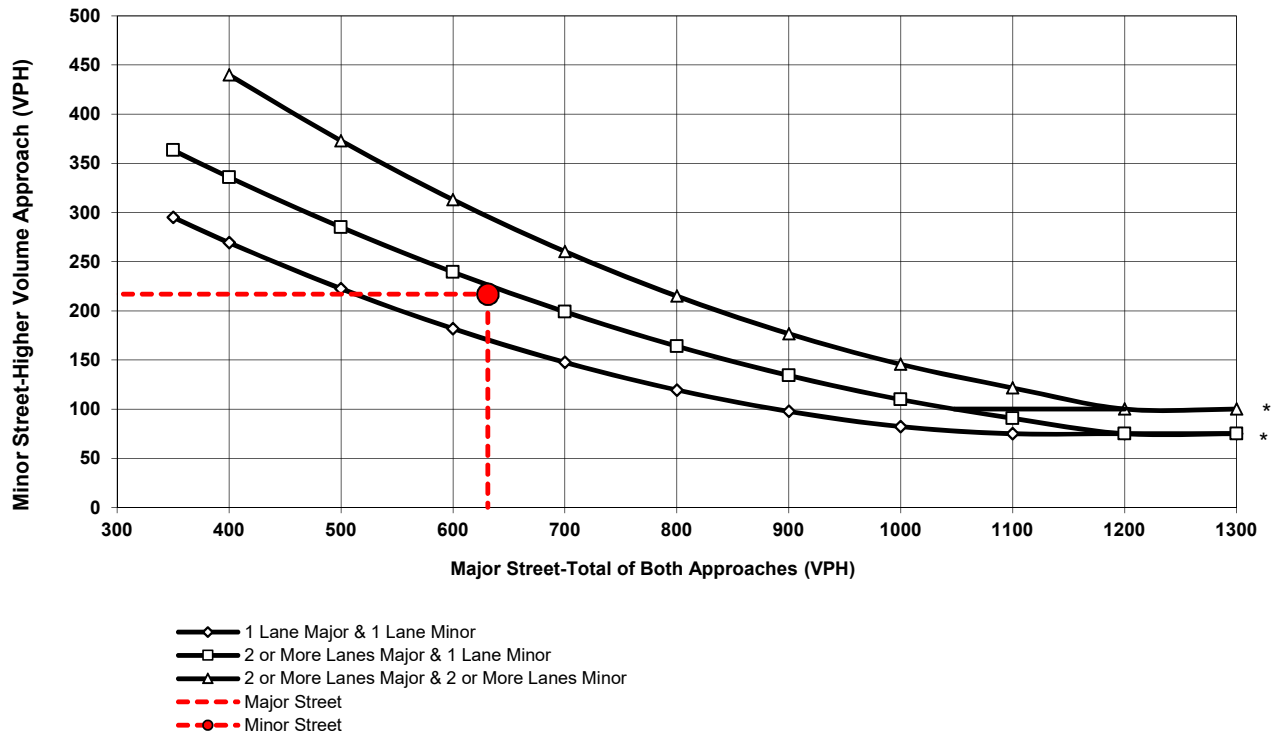
Higher Volume Approach (VPH): **217**

Number of Approach Lanes: **2**

Number of Approach Lanes: **2**

SIGNAL WARRANT NOT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:

100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**EP Conditions
PM Peak Hour Volume Warrant
Cactus Ave/Redlands Blvd**

EP CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: **AM**

Major Street: **Redlands Blvd (NS)**

Minor Street: **Alessandro Blvd (EW)**

Total of Both Approaches (VPH): **897**

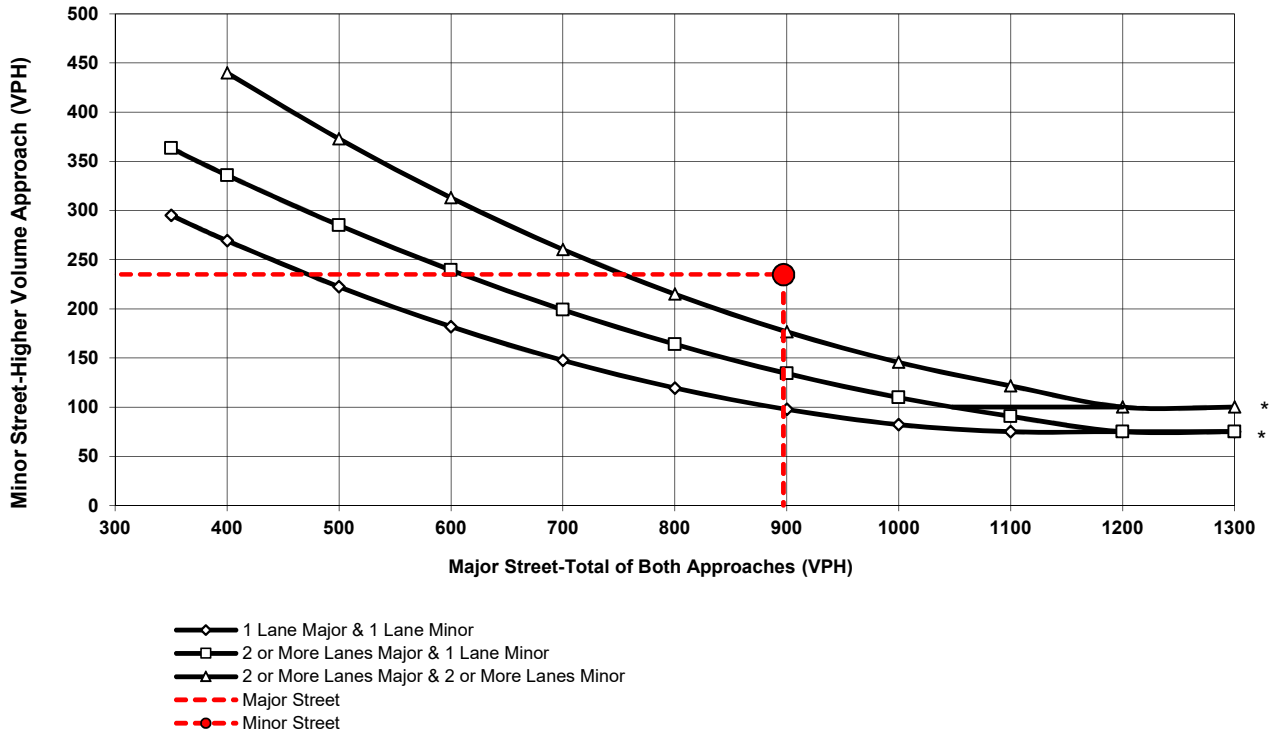
Higher Volume Approach (VPH): **235**

Number of Approach Lanes: **1**

Number of Approach Lanes: **1**

SIGNAL WARRANT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:

100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**EP Conditions
AM Peak Hour Volume Warrant
Alessandro Blvd/Redlands Blvd**

EP CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: PM

Major Street: Redlands Blvd (NS)

Minor Street: Alessandro Blvd (EW)

Total of Both Approaches (VPH): **866**

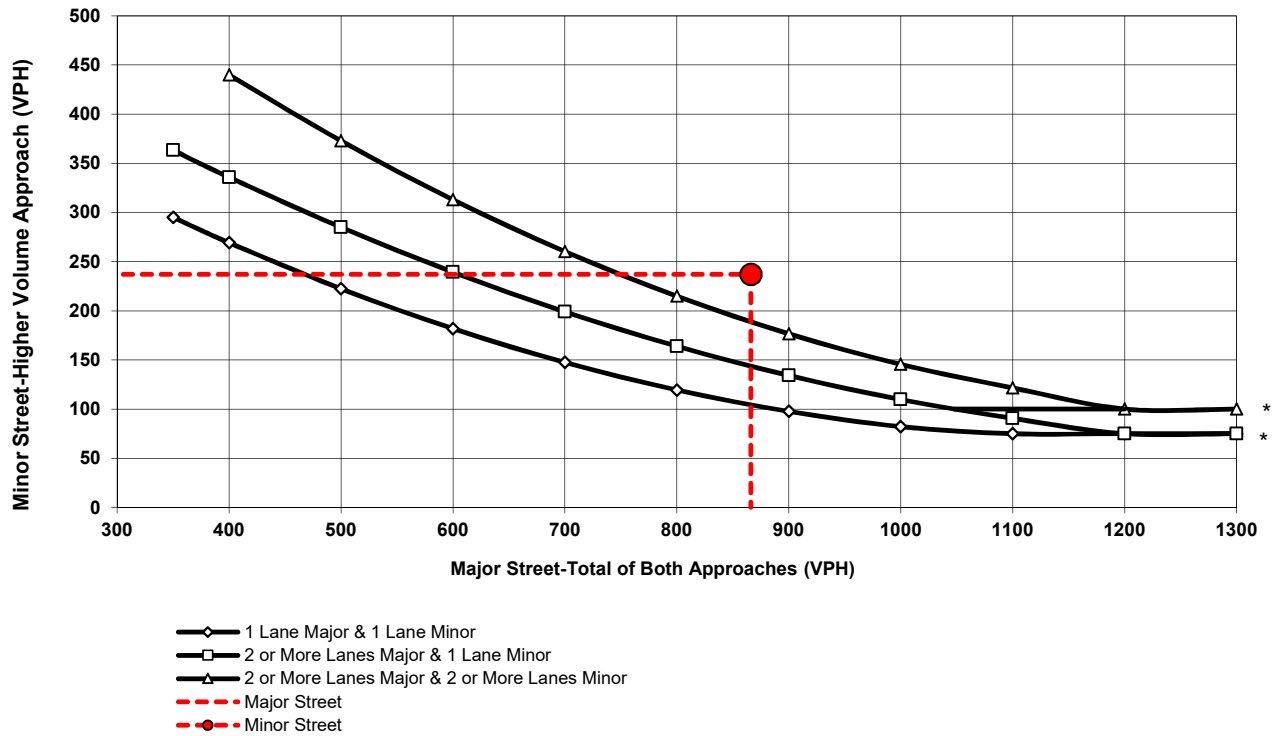
Higher Volume Approach (VPH): **237**

Number of Approach Lanes: **1**

Number of Approach Lanes: **1**

SIGNAL WARRANT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:

100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**EP Conditions
PM Peak Hour Volume Warrant
Alessandro Blvd/Redlands Blvd**

EP CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: **AM**

Major Street: **Alessandro Blvd (EW)**

Minor Street: **Merwin St (NS)**

Total of Both Approaches (VPH): **356**

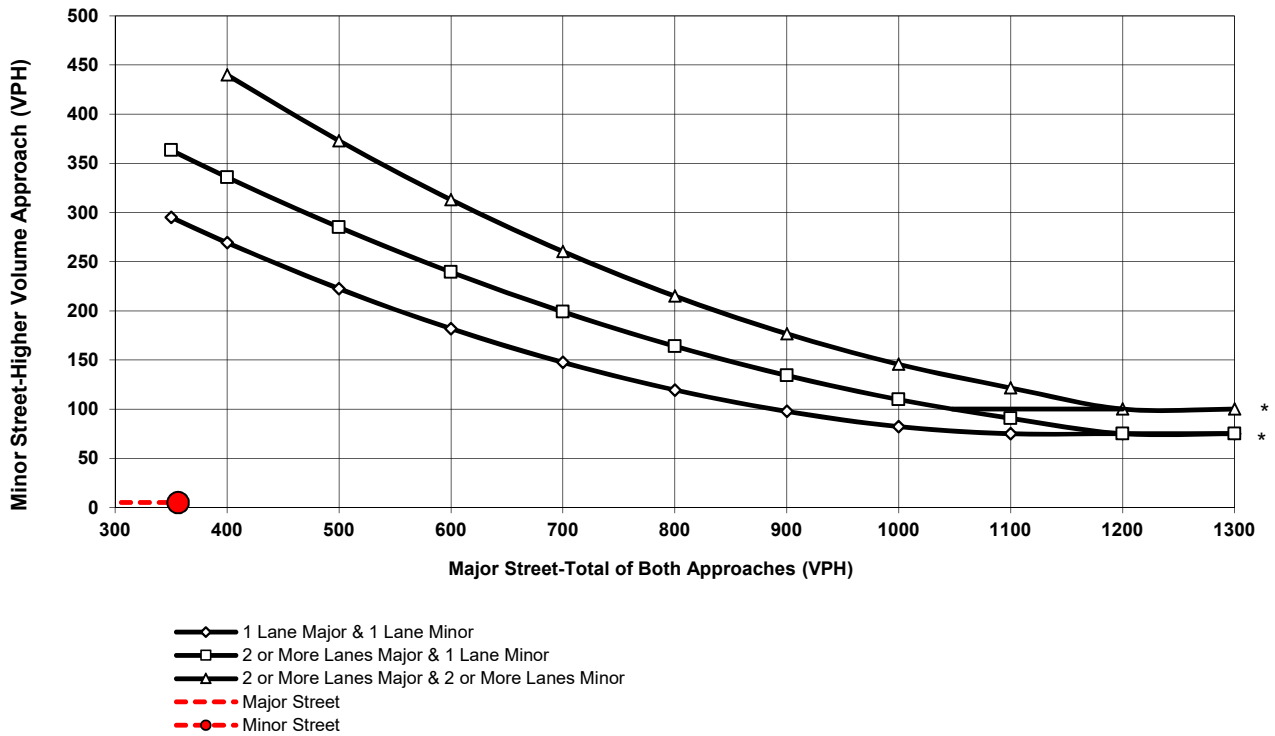
Higher Volume Approach (VPH): **5**

Number of Approach Lanes: **1**

Number of Approach Lanes: **1**

SIGNAL WARRANT NOT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:

100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**EP Conditions
AM Peak Hour Volume Warrant
Alessandro Blvd/Merwin St**

EP CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: **PM**

Major Street: **Alessandro Blvd (EW)**

Minor Street: **Merwin St (NS)**

Total of Both Approaches (VPH): **338**

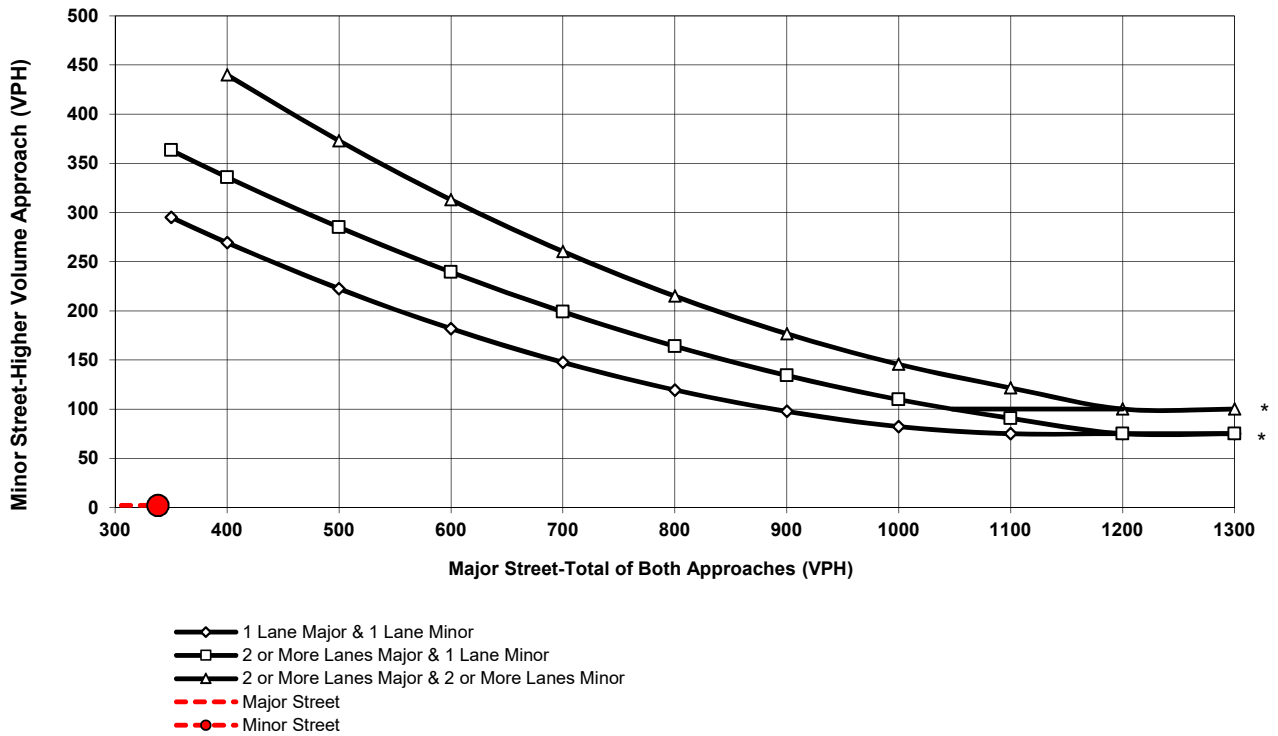
Higher Volume Approach (VPH): **2**

Number of Approach Lanes: **1**

Number of Approach Lanes: **1**

SIGNAL WARRANT NOT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:
100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**EP Conditions
PM Peak Hour Volume Warrant
Alessandro Blvd/Merwin St**

EAC CONDITIONS

EAC CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: **AM**

Major Street: **Alessandro Blvd (EW)**

Minor Street: **Wilmot St (NS)**

Total of Both Approaches (VPH): **502**

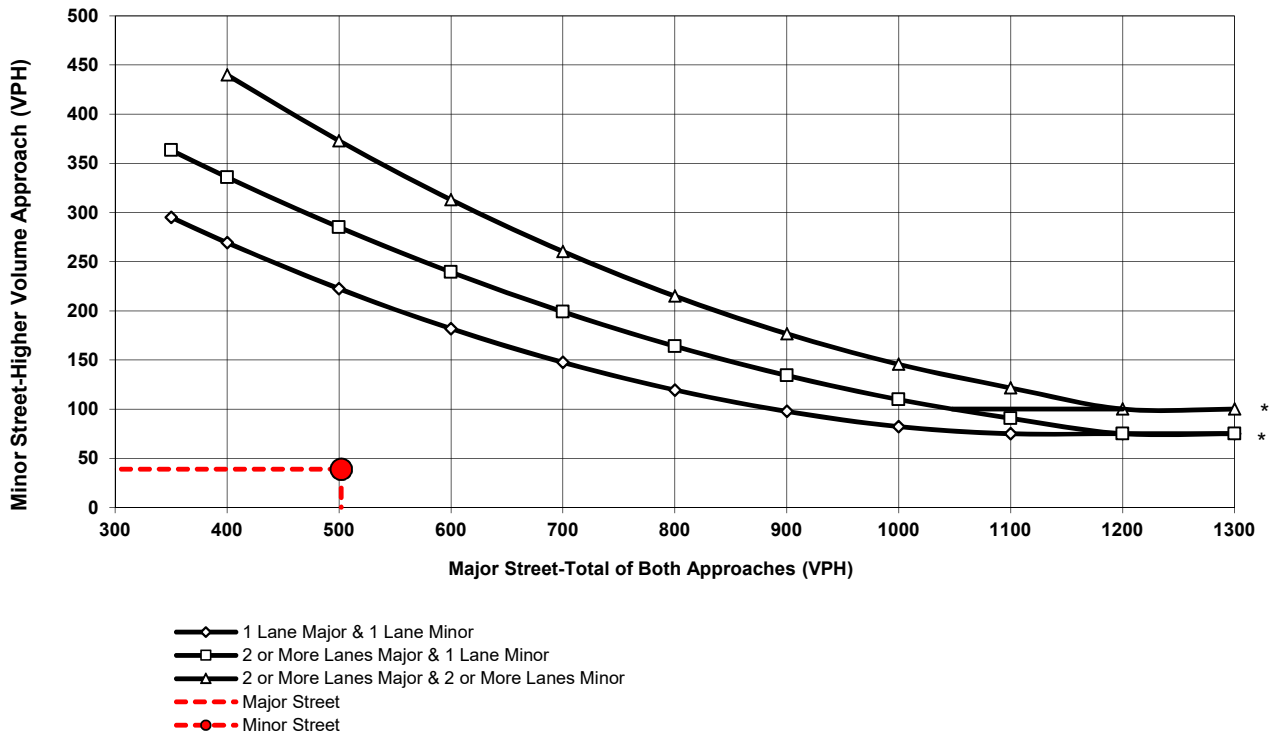
Higher Volume Approach (VPH): **39**

Number of Approach Lanes: **1**

Number of Approach Lanes: **1**

SIGNAL WARRANT NOT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:

100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**EAC Conditions
AM Peak Hour Volume Warrant
Alessandro Blvd/Wilmot St**

EAC CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: **PM**

Major Street: **Alessandro Blvd (EW)**

Minor Street: **Wilmot St (NS)**

Total of Both Approaches (VPH): **510**

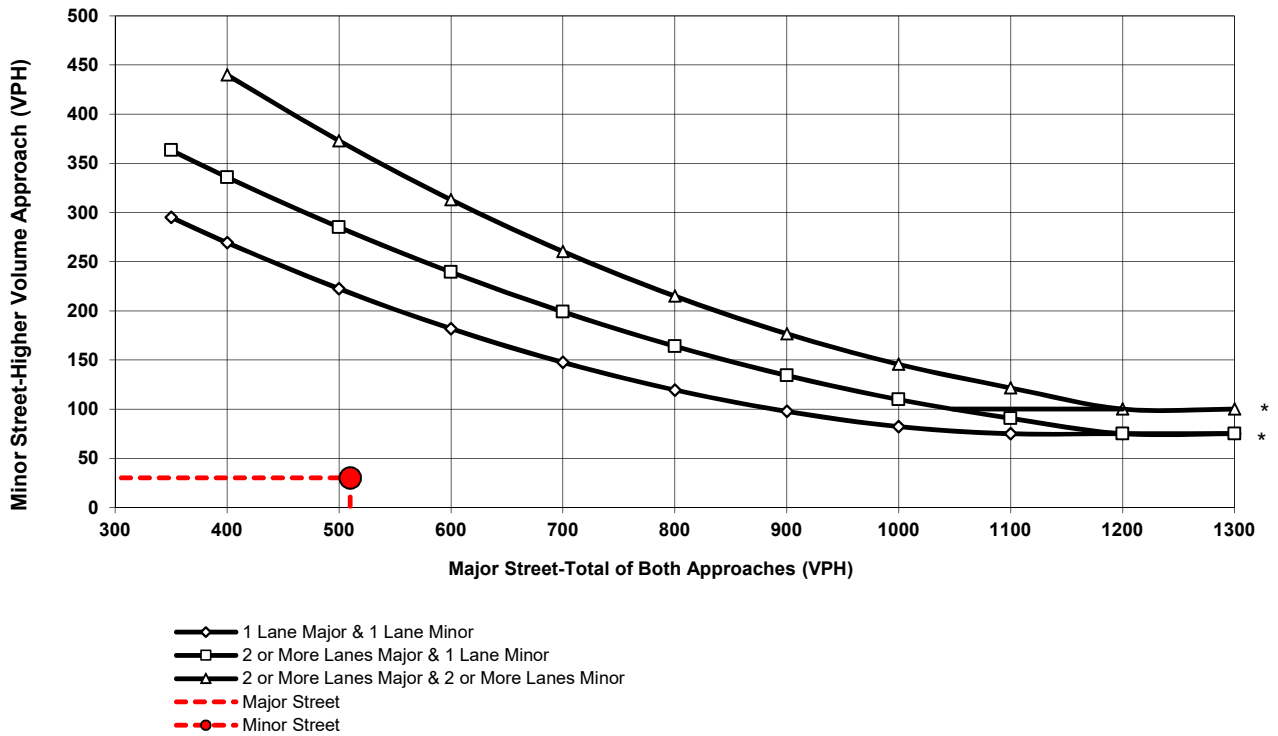
Higher Volume Approach (VPH): **30**

Number of Approach Lanes: **1**

Number of Approach Lanes: **1**

SIGNAL WARRANT NOT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:
100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**EAC Conditions
PM Peak Hour Volume Warrant
Alessandro Blvd/Wilmot St**

EAC CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: **AM**

Major Street: **Redlands Blvd (NS)**

Minor Street: **Cactus Ave (EW)**

Total of Both Approaches (VPH): **844**

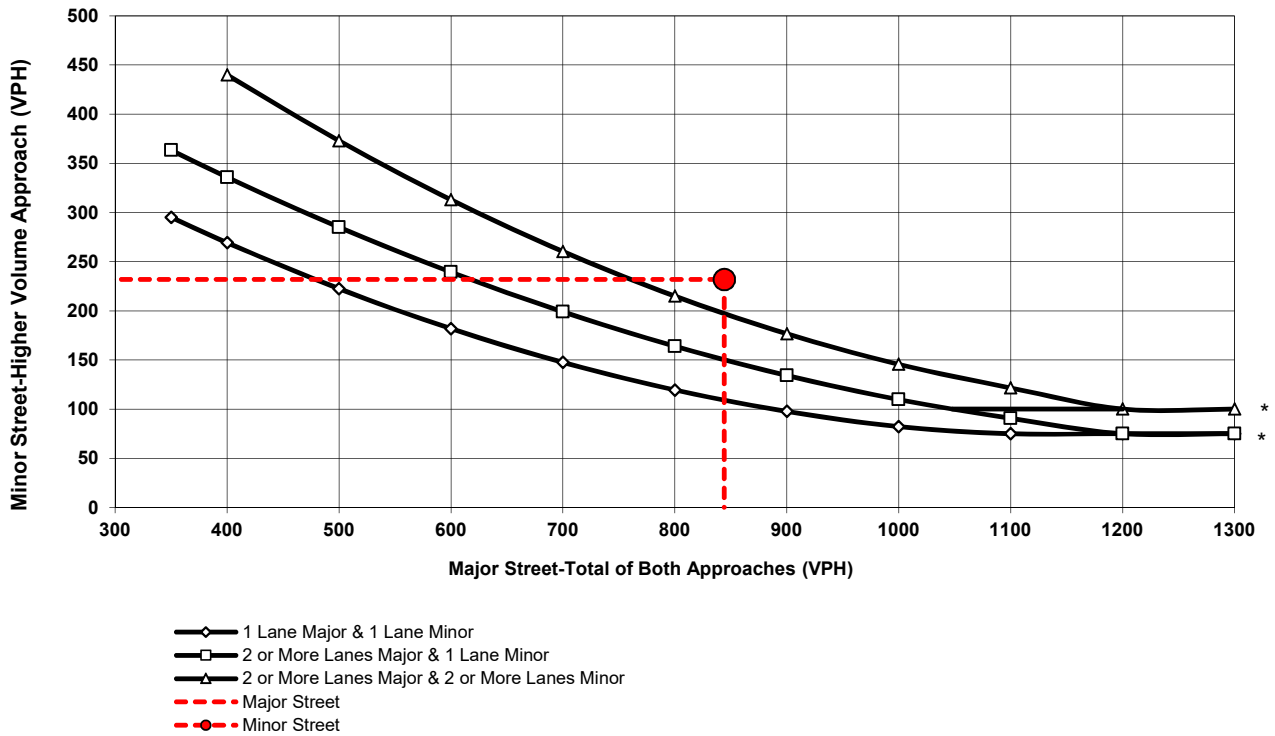
Higher Volume Approach (VPH): **232**

Number of Approach Lanes: **2**

Number of Approach Lanes: **1**

SIGNAL WARRANT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:

100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**EAC Conditions
AM Peak Hour Volume Warrant
Cactus Ave/Redlands Blvd**

EAC CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: **PM**

Major Street: **Redlands Blvd (NS)**

Minor Street: **Cactus Ave (EW)**

Total of Both Approaches (VPH): **705**

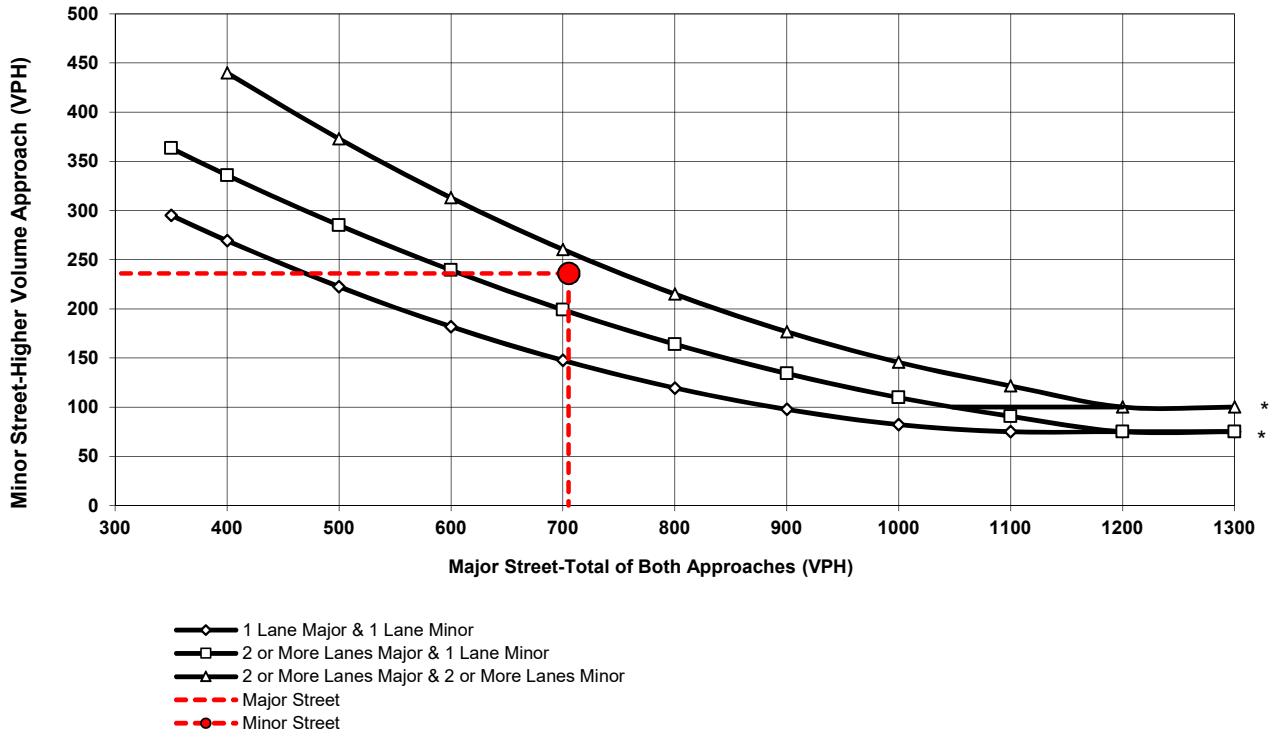
Higher Volume Approach (VPH): **236**

Number of Approach Lanes: **2**

Number of Approach Lanes: **2**

SIGNAL WARRANT NOT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:
100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**EAC Conditions
PM Peak Hour Volume Warrant
Cactus Ave/Redlands Blvd**

EAC CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: **AM**

Major Street: **Redlands Blvd (NS)**

Minor Street: **Alessandro Blvd (EW)**

Total of Both Approaches (VPH): **974**

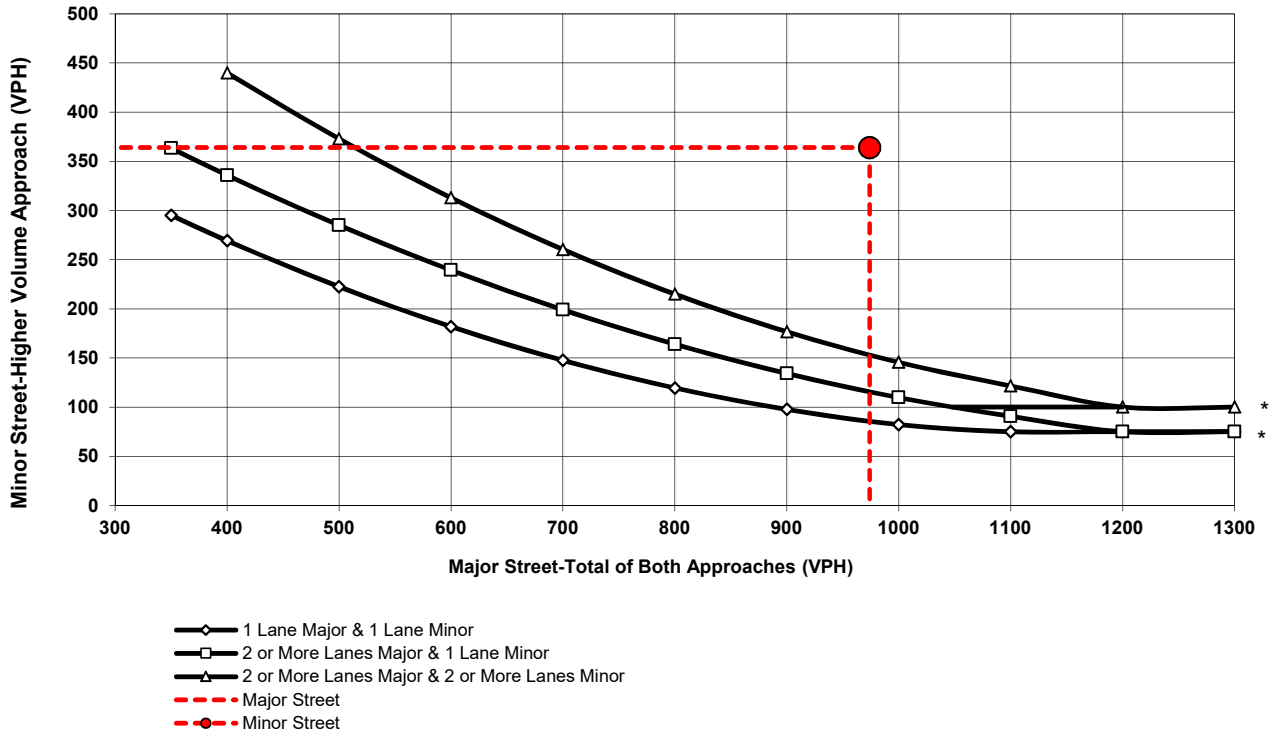
Higher Volume Approach (VPH): **364**

Number of Approach Lanes: **1**

Number of Approach Lanes: **1**

SIGNAL WARRANT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:
100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**EAC Conditions
AM Peak Hour Volume Warrant
Alessandro Blvd/Redlands Blvd**

EAC CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: **PM**

Major Street: **Redlands Blvd (NS)**

Minor Street: **Alessandro Blvd (EW)**

Total of Both Approaches (VPH): **976**

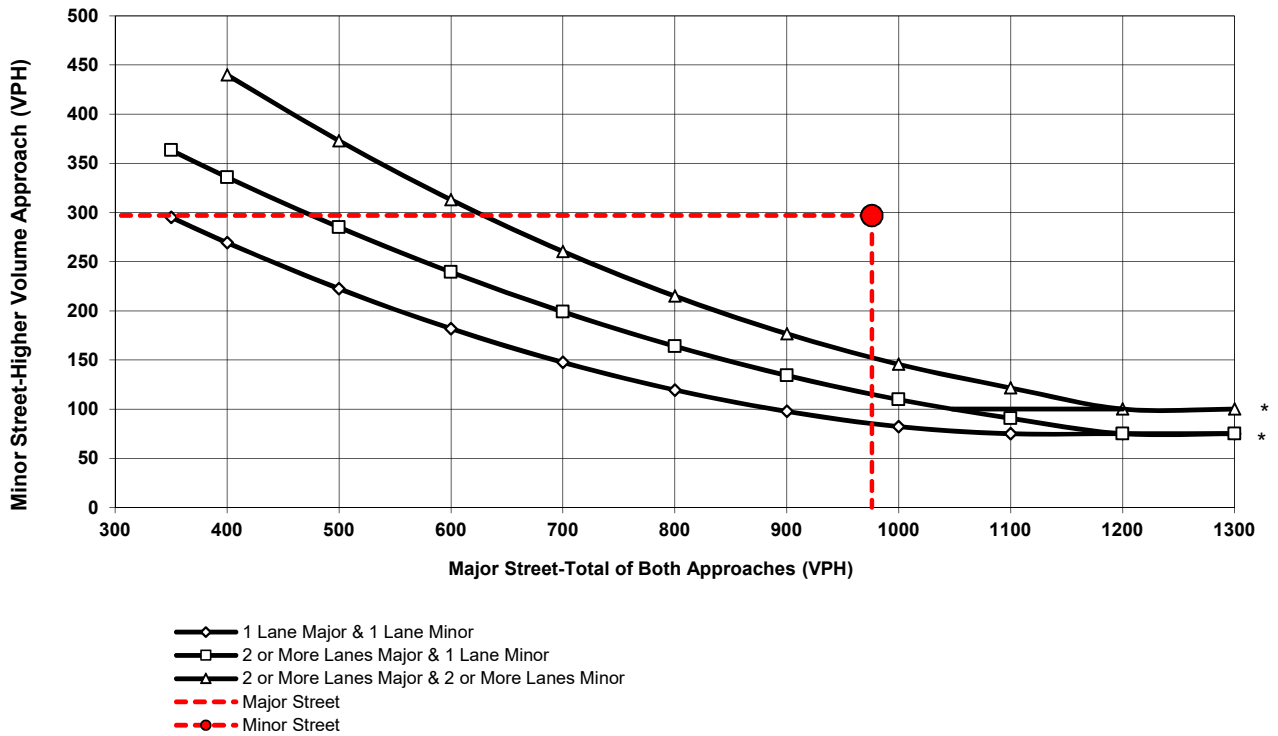
Higher Volume Approach (VPH): **297**

Number of Approach Lanes: **1**

Number of Approach Lanes: **1**

SIGNAL WARRANT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:

100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**EAC Conditions
PM Peak Hour Volume Warrant
Alessandro Blvd/Redlands Blvd**

EAC CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: **AM**

Major Street: **Alessandro Blvd (EW)**

Minor Street: **Merwin St (NS)**

Total of Both Approaches (VPH): **405**

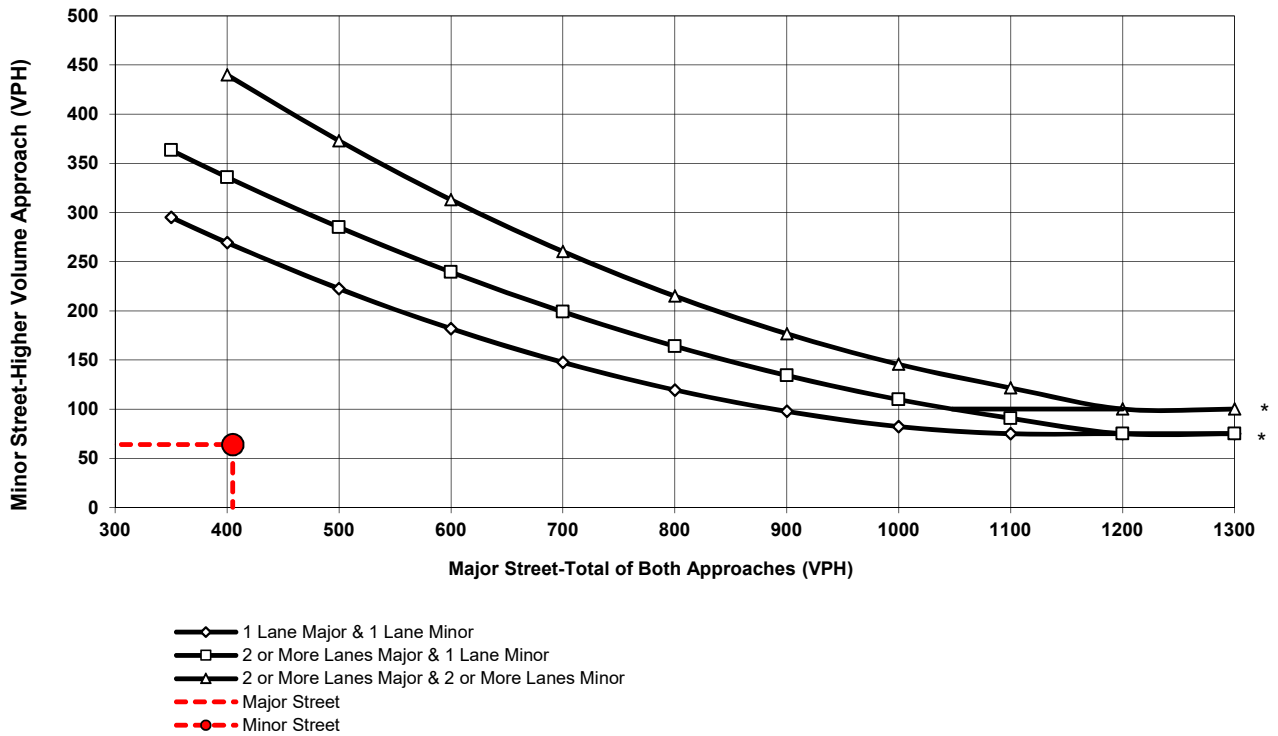
Higher Volume Approach (VPH): **64**

Number of Approach Lanes: **1**

Number of Approach Lanes: **1**

SIGNAL WARRANT NOT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:

100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**EAC Conditions
AM Peak Hour Volume Warrant
Alessandro Blvd/Merwin St**

EAC CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: **PM**

Major Street: **Alessandro Blvd (EW)**

Minor Street: **Merwin St (NS)**

Total of Both Approaches (VPH): **431**

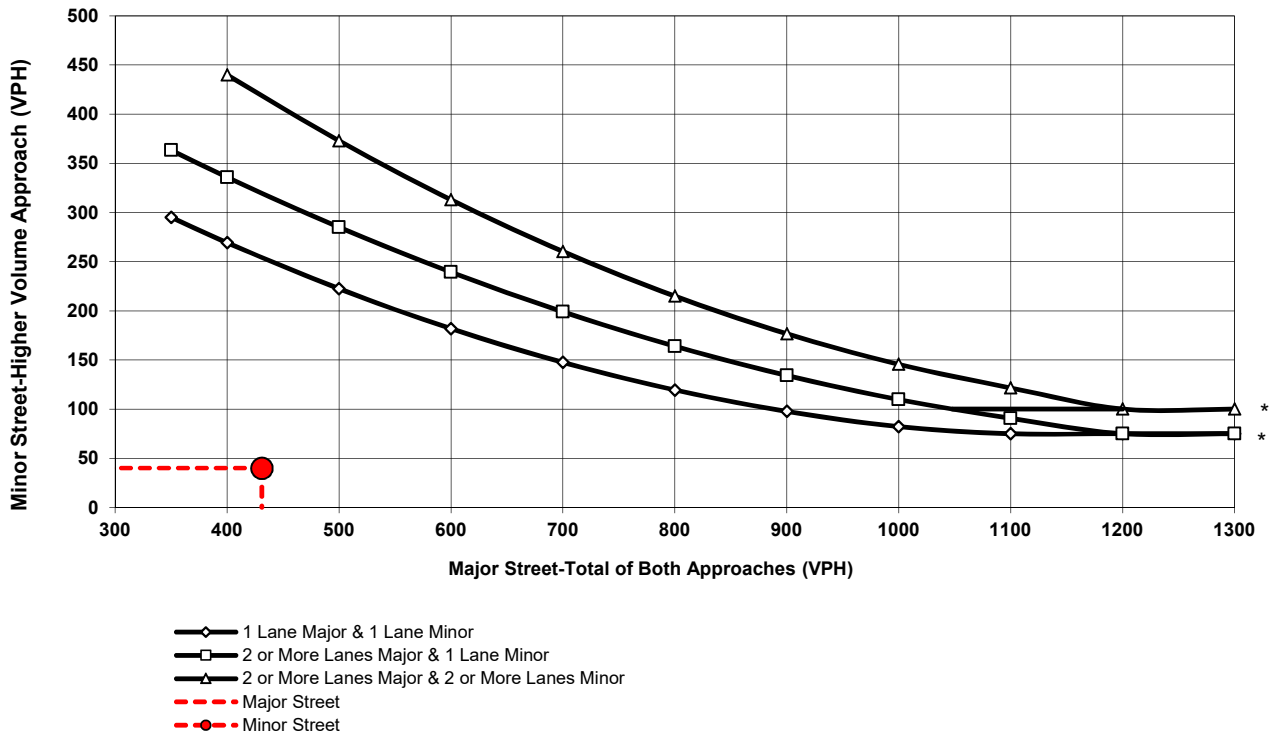
Higher Volume Approach (VPH): **40**

Number of Approach Lanes: **1**

Number of Approach Lanes: **1**

SIGNAL WARRANT NOT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:
100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**EAC Conditions
PM Peak Hour Volume Warrant
Alessandro Blvd/Merwin St**

EACP CONDITIONS

EACP CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: **PM**

Major Street: **Cactus Ave (EW)**

Minor Street: **Redlands Blvd (NS)**

Total of Both Approaches (VPH): **708**

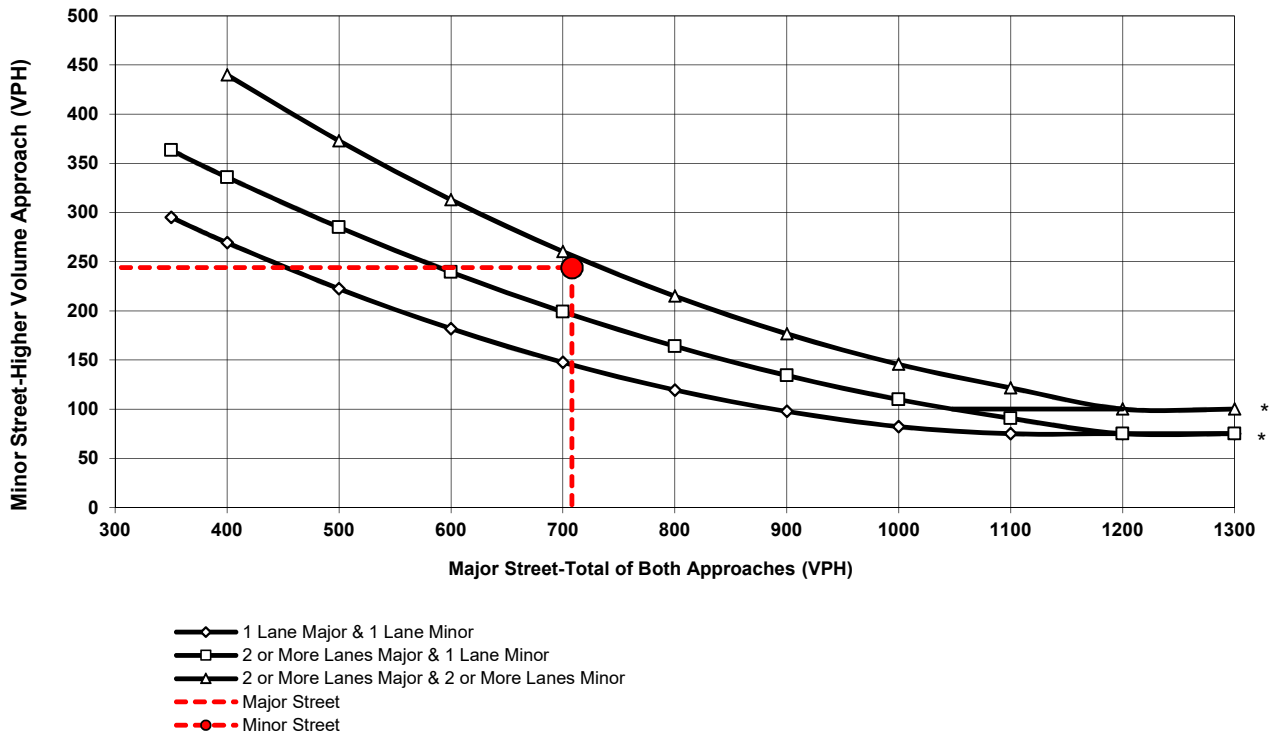
Higher Volume Approach (VPH): **244**

Number of Approach Lanes: **2**

Number of Approach Lanes: **2**

SIGNAL WARRANT NOT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:

100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**EACP Conditions
PM Peak Hour Volume Warrant
Cactus Ave/Redlands Blvd**

EACP CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: **AM**

Major Street: **Alessandro Blvd (EW)**

Minor Street: **Wilmot St (NS)**

Total of Both Approaches (VPH): **546**

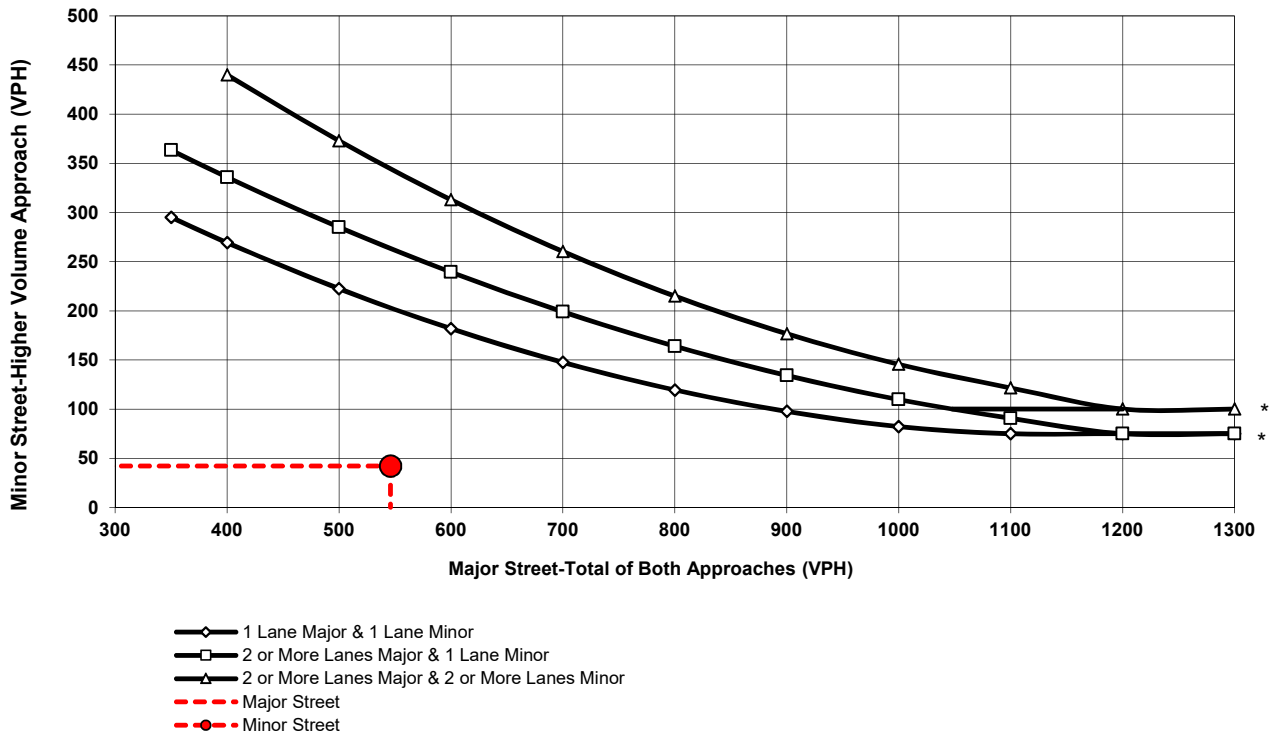
Higher Volume Approach (VPH): **42**

Number of Approach Lanes: **1**

Number of Approach Lanes: **1**

SIGNAL WARRANT NOT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:

100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**EACP Conditions
AM Peak Hour Volume Warrant
Alessandro Blvd/Wilmot St**

EACP CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: **PM**

Major Street: **Alessandro Blvd (EW)**

Minor Street: **Wilmot St (NS)**

Total of Both Approaches (VPH): **569**

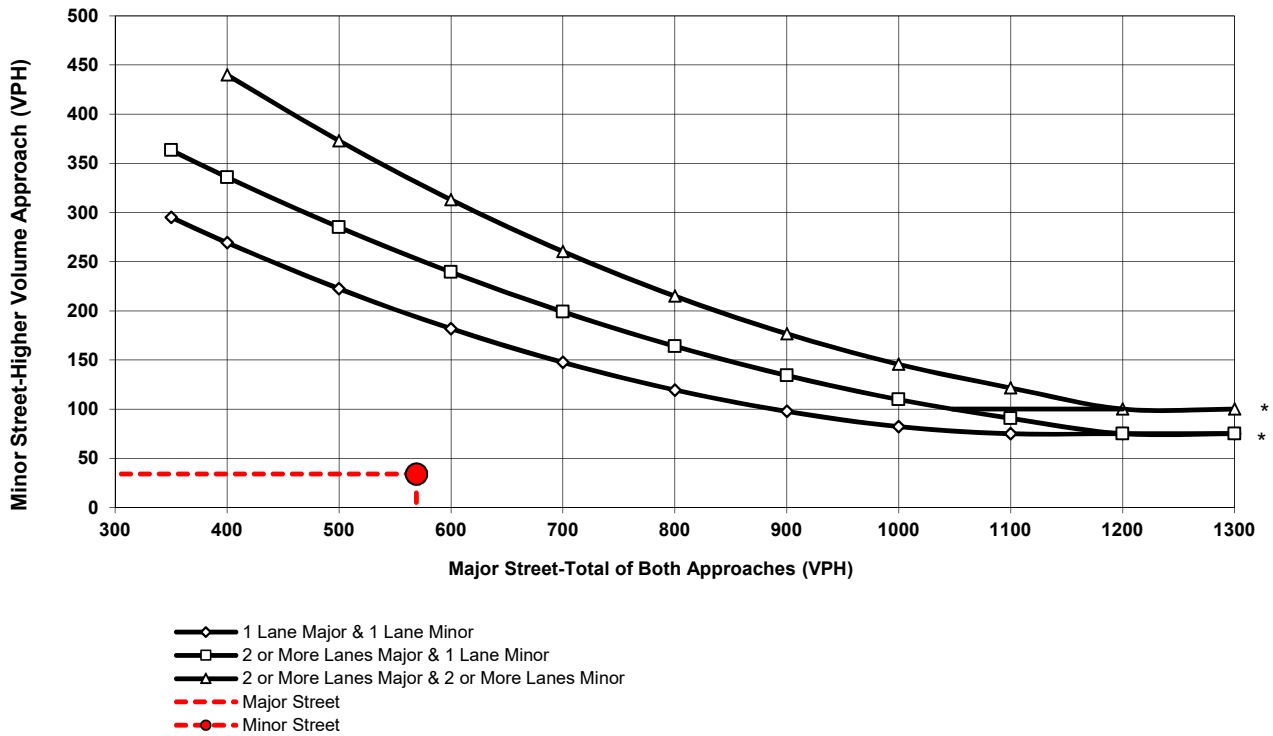
Higher Volume Approach (VPH): **34**

Number of Approach Lanes: **1**

Number of Approach Lanes: **1**

SIGNAL WARRANT NOT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:
100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**EACP Conditions
PM Peak Hour Volume Warrant
Alessandro Blvd/Wilmot St**

EACP CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: **AM**

Major Street: **Alessandro Blvd (EW)**

Minor Street: **Merwin St (NS)**

Total of Both Approaches (VPH): **411**

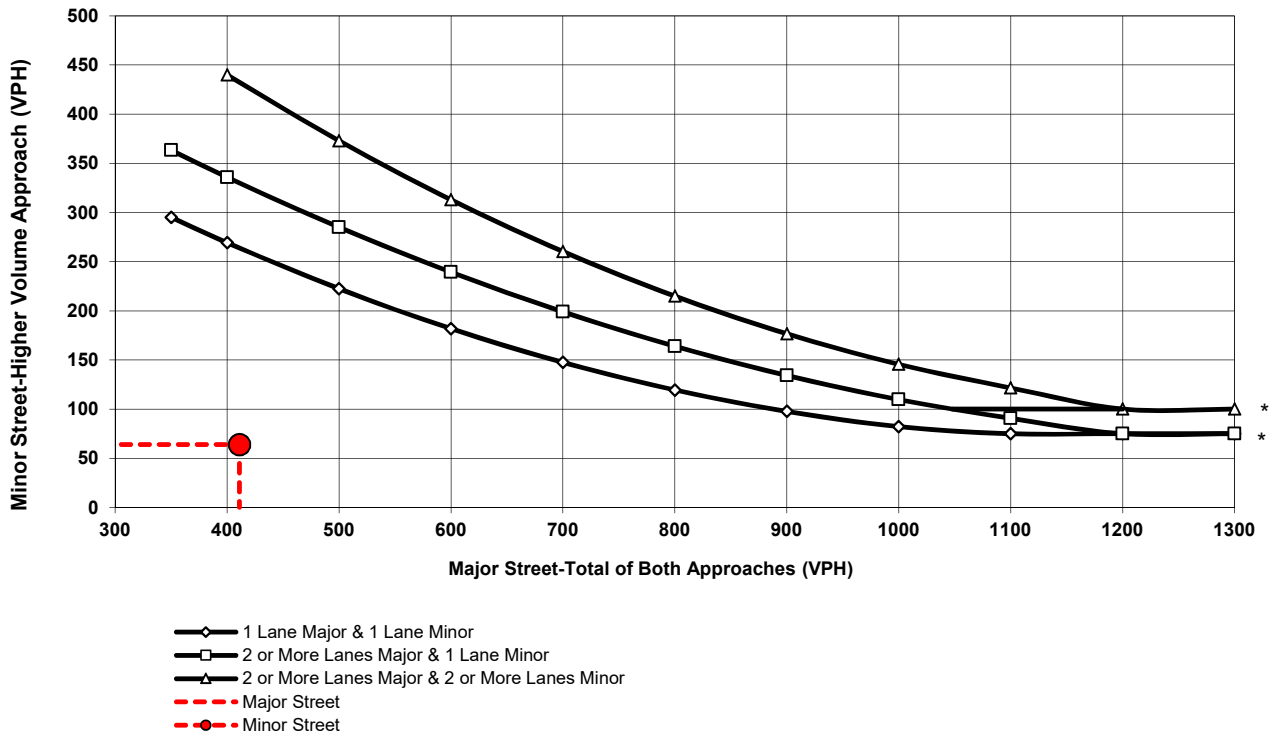
Higher Volume Approach (VPH): **64**

Number of Approach Lanes: **1**

Number of Approach Lanes: **1**

SIGNAL WARRANT NOT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:

100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**EACP Conditions
AM Peak Hour Volume Warrant
Alessandro Blvd/Merwin St**

EACP CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: **PM**

Major Street: **Alessandro Blvd (EW)**

Minor Street: **Merwin St (NS)**

Total of Both Approaches (VPH): **438**

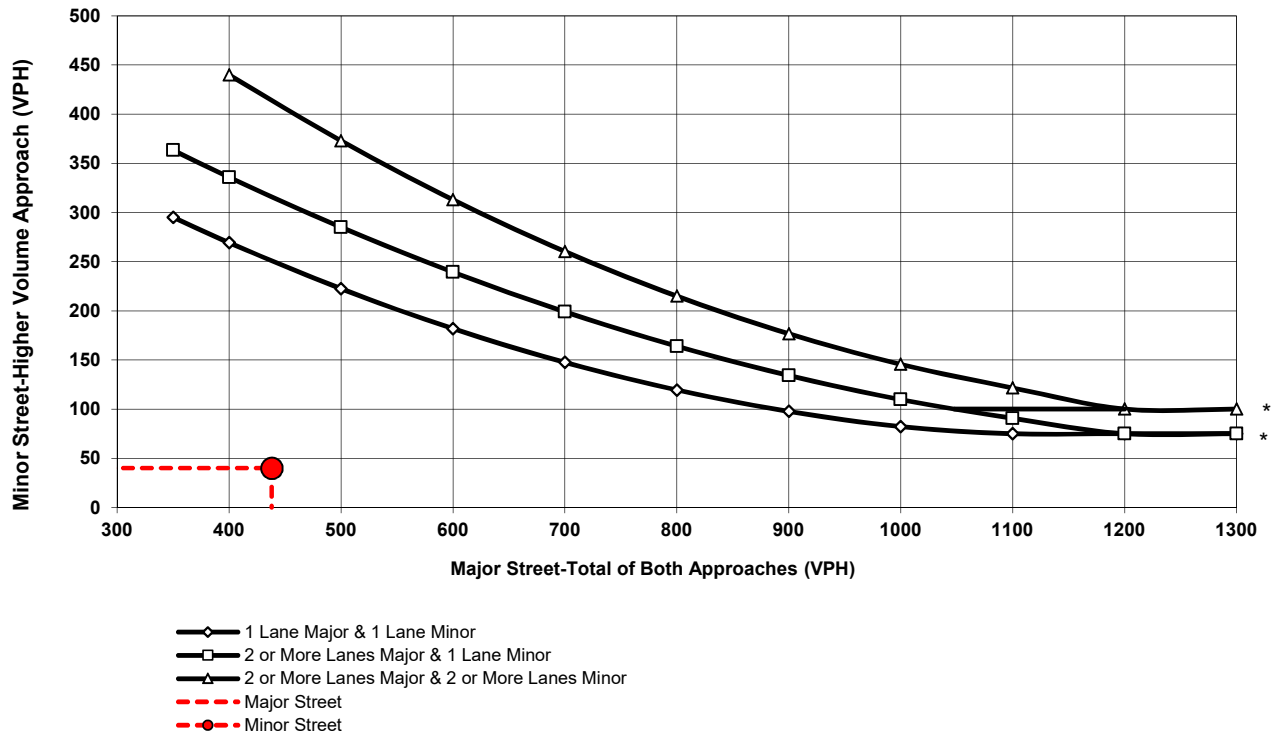
Higher Volume Approach (VPH): **40**

Number of Approach Lanes: **1**

Number of Approach Lanes: **1**

SIGNAL WARRANT NOT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:
100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**EACP Conditions
PM Peak Hour Volume Warrant
Alessandro Blvd/Merwin St**

EACP CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: **AM**

Major Street: **Redlands Blvd (NS)**

Minor Street: **Alessandro Blvd (EW)**

Total of Both Approaches (VPH): **1008**

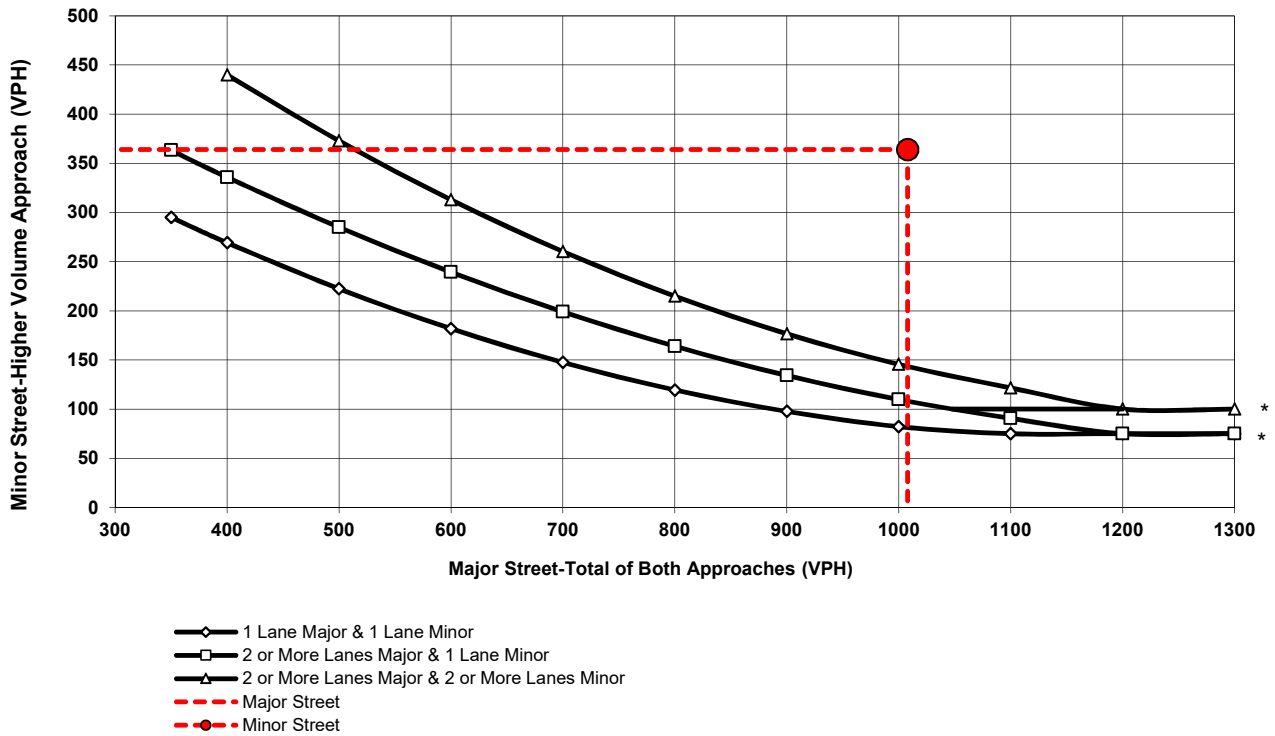
Higher Volume Approach (VPH): **364**

Number of Approach Lanes: **1**

Number of Approach Lanes: **1**

SIGNAL WARRANT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:
100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**EACP Conditions
AM Peak Hour Volume Warrant
Alessandro Blvd/Redlands Blvd**

EACP CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: **PM**

Major Street: **Redlands Blvd (NS)**

Minor Street: **Alessandro Blvd (EW)**

Total of Both Approaches (VPH): **1019**

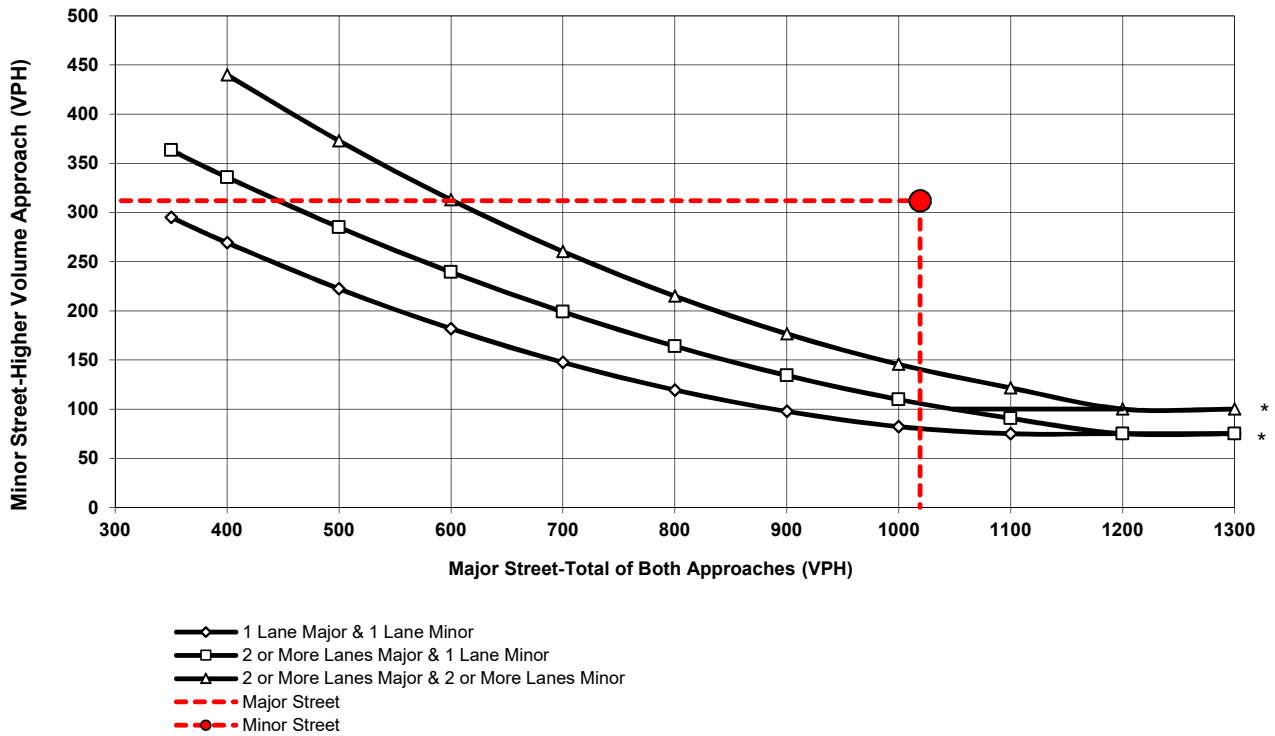
Higher Volume Approach (VPH): **312**

Number of Approach Lanes: **1**

Number of Approach Lanes: **1**

SIGNAL WARRANT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:
100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**EACP Conditions
PM Peak Hour Volume Warrant
Alessandro Blvd/Redlands Blvd**

EACP CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: **AM**

Major Street: **Redlands Blvd (NS)**

Minor Street: **Cactus Ave (EW)**

Total of Both Approaches (VPH): **846**

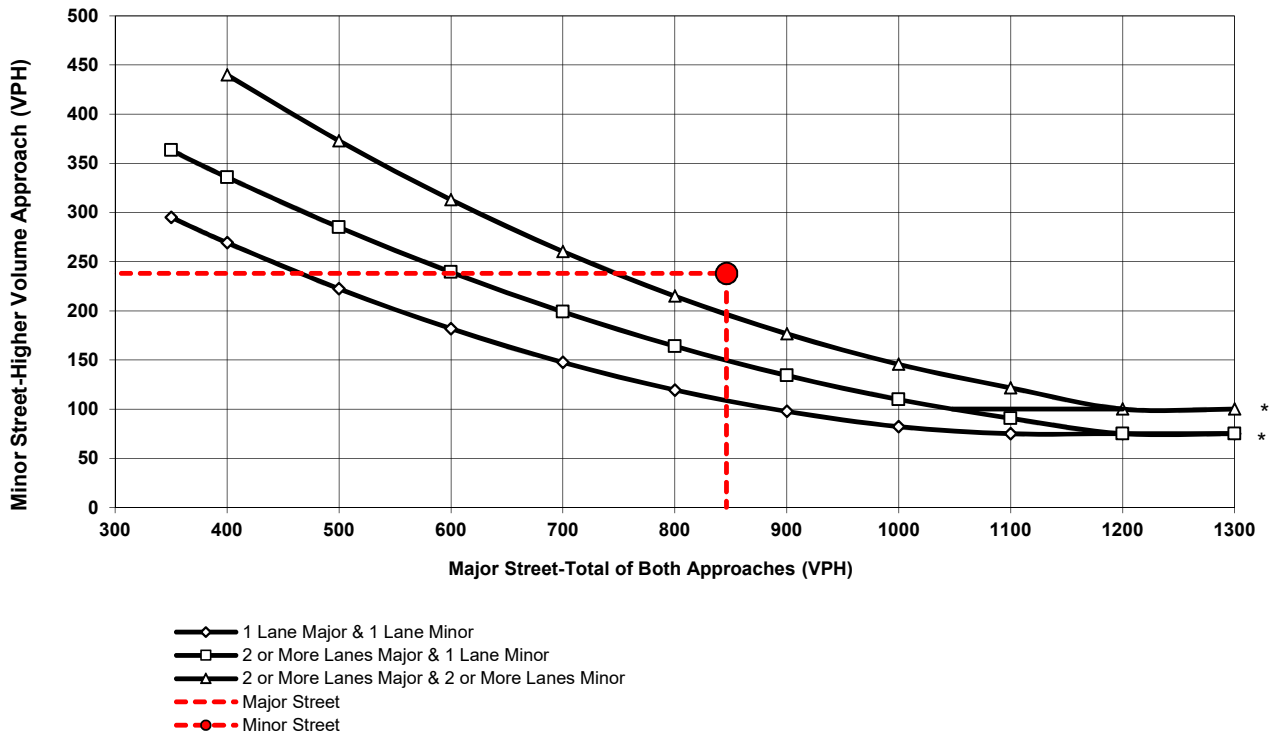
Higher Volume Approach (VPH): **238**

Number of Approach Lanes: **2**

Number of Approach Lanes: **2**

SIGNAL WARRANT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:
100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**EACP Conditions
AM Peak Hour Volume Warrant
Cactus Ave/Redlands Blvd**

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

APPENDIX E
QUEUING ANALYSIS SHEETS

Redlands Alessandro TIA
2: Redlands Bl & Cottonwood Av

EP Conditions AM Peak Hour
Queues



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	42	55	36	476	336	33
v/c Ratio	0.20	0.24	0.18	0.32	0.25	0.03
Control Delay	27.8	11.0	27.9	3.1	5.7	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.8	11.0	27.9	3.1	5.7	2.7
Queue Length 50th (ft)	15	0	13	40	26	0
Queue Length 95th (ft)	40	28	37	80	110	10
Internal Link Dist (ft)	2323			2623	422	
Turn Bay Length (ft)			140			
Base Capacity (vph)	522	506	220	1496	1360	1165
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.11	0.16	0.32	0.25	0.03
Intersection Summary						

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
3: Redlands BI & Alessandro BI

EP Conditions AM Peak Hour
HCM 6th AWSC

Intersection

Intersection Delay, s/veh 49.2

Intersection LOS E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕		↕			↕	↕		↕	
Traffic Vol, veh/h	53	65	27	70	154	11	51	408	77	26	276	92
Future Vol, veh/h	53	65	27	70	154	11	51	408	77	26	276	92
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	58	71	29	76	167	12	55	443	84	28	300	100
Number of Lanes	0	1	1	0	1	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	2
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	1	2	2	1
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	2	1	1	2
HCM Control Delay	15.4	24.2	69.9	48.3
HCM LOS	C	C	F	E

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	11%	0%	45%	0%	30%	7%
Vol Thru, %	89%	0%	55%	0%	66%	70%
Vol Right, %	0%	100%	0%	100%	5%	23%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	459	77	118	27	235	394
LT Vol	51	0	53	0	70	26
Through Vol	408	0	65	0	154	276
RT Vol	0	77	0	27	11	92
Lane Flow Rate	499	84	128	29	255	428
Geometry Grp	7	7	7	7	6	6
Degree of Util (X)	1.042	0.157	0.323	0.066	0.605	0.899
Departure Headway (Hd)	7.519	6.741	9.24	8.276	8.7	7.706
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	484	536	391	436	416	475
Service Time	5.219	4.441	6.94	5.976	6.7	5.706
HCM Lane V/C Ratio	1.031	0.157	0.327	0.067	0.613	0.901
HCM Control Delay	79.8	10.7	16.3	11.6	24.2	48.3
HCM Lane LOS	F	B	C	B	C	E
HCM 95th-tile Q	15	0.6	1.4	0.2	3.9	9.9

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
4: Redlands Bl & Cactus Av

EP Conditions AM Peak Hour
HCM 6th AWSC

Intersection												
Intersection Delay, s/veh	14.6											
Intersection LOS	B											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕	↗		↕			↕↕	↗		↕	↗
Traffic Vol, veh/h	130	7	74	1	14	21	21	349	0	3	279	108
Future Vol, veh/h	130	7	74	1	14	21	21	349	0	3	279	108
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	148	8	84	1	16	24	24	397	0	3	317	123
Number of Lanes	0	2	1	0	1	0	0	2	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	3	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	3	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	1	3
HCM Control Delay	12.3	11.1	14.5	16.3
HCM LOS	B	B	B	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	SBLn1	SBLn2
Vol Left, %	15%	0%	0%	98%	0%	0%	3%	1%	0%
Vol Thru, %	85%	100%	100%	2%	100%	0%	39%	99%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	58%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	137	233	0	132	5	74	36	282	108
LT Vol	21	0	0	130	0	0	1	3	0
Through Vol	116	233	0	2	5	0	14	279	0
RT Vol	0	0	0	0	0	74	21	0	108
Lane Flow Rate	156	264	0	150	5	84	41	320	123
Geometry Grp	8	8	8	7	7	7	8	8	8
Degree of Util (X)	0.293	0.491	0	0.312	0.01	0.146	0.087	0.592	0.202
Departure Headway (Hd)	6.759	6.682	6.682	7.467	6.966	6.254	7.677	6.652	5.938
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	529	537	0	480	511	569	470	538	600
Service Time	4.542	4.465	4.465	5.247	4.747	4.034	5.377	4.434	3.719
HCM Lane V/C Ratio	0.295	0.492	0	0.313	0.01	0.148	0.087	0.595	0.205
HCM Control Delay	12.4	15.8	9.5	13.6	9.8	10.1	11.1	18.7	10.2
HCM Lane LOS	B	C	N	B	A	B	B	C	B
HCM 95th-tile Q	1.2	2.7	0	1.3	0	0.5	0.3	3.8	0.7

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
2: Redlands Bl & Cottonwood Av

EP Conditions PM Peak Hour
Queues



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	26	32	28	340	477	53
v/c Ratio	0.13	0.16	0.14	0.21	0.33	0.04
Control Delay	27.0	12.2	27.1	2.1	5.6	2.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.0	12.2	27.1	2.1	5.6	2.2
Queue Length 50th (ft)	9	0	10	26	40	0
Queue Length 95th (ft)	29	22	31	48	160	12
Internal Link Dist (ft)	2323			2623	422	
Turn Bay Length (ft)			140			
Base Capacity (vph)	519	487	218	1593	1458	1250
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.07	0.13	0.21	0.33	0.04
Intersection Summary						

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
3: Redlands BI & Alessandro BI

EP Conditions PM Peak Hour
HCM 6th AWSC

Intersection

Intersection Delay, s/veh 41.9

Intersection LOS E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕		↕			↕	↕		↕	
Traffic Vol, veh/h	79	151	22	47	60	18	58	285	67	52	393	56
Future Vol, veh/h	79	151	22	47	60	18	58	285	67	52	393	56
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	82	157	23	49	63	19	60	297	70	54	409	58
Number of Lanes	0	1	1	0	1	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	2
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	1	2	2	1
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	2	1	1	2
HCM Control Delay	19.3	15.7	23.9	74.6
HCM LOS	C	C	C	F

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	17%	0%	34%	0%	38%	10%
Vol Thru, %	83%	0%	66%	0%	48%	78%
Vol Right, %	0%	100%	0%	100%	14%	11%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	343	67	230	22	125	501
LT Vol	58	0	79	0	47	52
Through Vol	285	0	151	0	60	393
RT Vol	0	67	0	22	18	56
Lane Flow Rate	357	70	240	23	130	522
Geometry Grp	7	7	7	7	6	6
Degree of Util (X)	0.714	0.126	0.534	0.045	0.306	1.03
Departure Headway (Hd)	7.443	6.636	8.298	7.396	8.825	7.102
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	489	544	438	487	410	517
Service Time	5.143	4.336	5.998	5.096	6.825	5.103
HCM Lane V/C Ratio	0.73	0.129	0.548	0.047	0.317	1.01
HCM Control Delay	26.6	10.3	20.1	10.4	15.7	74.6
HCM Lane LOS	D	B	C	B	C	F
HCM 95th-tile Q	5.6	0.4	3.1	0.1	1.3	15

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
4: Redlands Bl & Cactus Av

EP Conditions PM Peak Hour
HCM 6th AWSC

Intersection

Intersection Delay, s/veh 13
Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕	↗		↕			↕↕	↗		↕	↗
Traffic Vol, veh/h	167	14	36	0	6	11	11	190	0	18	304	108
Future Vol, veh/h	167	14	36	0	6	11	11	190	0	18	304	108
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	176	15	38	0	6	12	12	200	0	19	320	114
Number of Lanes	0	2	1	0	1	0	0	2	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	3	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	3	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	1	3
HCM Control Delay	12.3	9.8	10.9	14.5
HCM LOS	B	A	B	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	SBLn1	SBLn2
Vol Left, %	15%	0%	0%	97%	0%	0%	0%	6%	0%
Vol Thru, %	85%	100%	100%	3%	100%	0%	35%	94%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	65%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	74	127	0	172	9	36	17	322	108
LT Vol	11	0	0	167	0	0	0	18	0
Through Vol	63	127	0	5	9	0	6	304	0
RT Vol	0	0	0	0	0	36	11	0	108
Lane Flow Rate	78	133	0	181	10	38	18	339	114
Geometry Grp	8	8	8	7	7	7	8	8	8
Degree of Util (X)	0.142	0.239	0	0.344	0.017	0.059	0.034	0.565	0.166
Departure Headway (Hd)	6.538	6.463	6.463	6.853	6.361	5.652	6.763	6.002	5.269
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	548	555	0	526	563	633	528	600	680
Service Time	4.283	4.208	4.208	4.593	4.101	3.392	4.523	3.738	3.005
HCM Lane V/C Ratio	0.142	0.24	0	0.344	0.018	0.06	0.034	0.565	0.168
HCM Control Delay	10.4	11.2	9.2	13.2	9.2	8.7	9.8	16.3	9.1
HCM Lane LOS	B	B	N	B	A	A	A	C	A
HCM 95th-tile Q	0.5	0.9	0	1.5	0.1	0.2	0.1	3.5	0.6

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
2: Redlands Bl & Cottonwood Av

EACP Conditions AM Peak Hour
Queues



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	51	62	46	574	386	38
v/c Ratio	0.24	0.25	0.23	0.38	0.30	0.03
Control Delay	28.2	10.7	28.8	3.6	7.1	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.2	10.7	28.8	3.6	7.1	2.7
Queue Length 50th (ft)	18	0	17	53	69	0
Queue Length 95th (ft)	46	29	44	107	132	11
Internal Link Dist (ft)	2323			2623	422	
Turn Bay Length (ft)			140			
Base Capacity (vph)	521	509	219	1491	1289	1107
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.12	0.21	0.38	0.30	0.03
Intersection Summary						

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
3: Redlands BI & Alessandro BI

EACP Conditions AM Peak Hour
HCM 6th AWSC

Intersection

Intersection Delay, s/veh 13.6

Intersection LOS F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔		↔			↔	↔		↔	
Traffic Vol, veh/h	59	84	30	84	216	64	53	449	87	44	305	103
Future Vol, veh/h	59	84	30	84	216	64	53	449	87	44	305	103
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	64	91	33	91	235	70	58	488	95	48	332	112
Number of Lanes	0	1	1	0	1	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	1	2
HCM Control Delay	20.1	68.6	153.7	133.5
HCM LOS	C	F	F	F

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	11%	0%	41%	0%	23%	10%
Vol Thru, %	89%	0%	59%	0%	59%	67%
Vol Right, %	0%	100%	0%	100%	18%	23%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	502	87	143	30	364	452
LT Vol	53	0	59	0	84	44
Through Vol	449	0	84	0	216	305
RT Vol	0	87	0	30	64	103
Lane Flow Rate	546	95	155	33	396	491
Geometry Grp	7	7	7	7	6	6
Degree of Util (X)	1.299	0.205	0.425	0.081	0.956	1.179
Departure Headway (Hd)	9.061	8.276	10.957	10	9.814	9.289
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	404	436	331	360	372	393
Service Time	6.761	5.976	8.657	7.7	7.814	7.289
HCM Lane V/C Ratio	1.351	0.218	0.468	0.092	1.065	1.249
HCM Control Delay	178.1	13.1	21.5	13.6	68.6	133.5
HCM Lane LOS	F	B	C	B	F	F
HCM 95th-tile Q	23.2	0.8	2	0.3	10.5	18.1

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
4: Redlands Bl & Cactus Av

EACP Conditions AM Peak Hour
HCM 6th AWSC

Intersection

Intersection Delay, s/veh 17.6

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕	↕		↕			↕↕	↕		↕	↕
Traffic Vol, veh/h	154	8	81	1	15	23	23	385	0	3	308	129
Future Vol, veh/h	154	8	81	1	15	23	23	385	0	3	308	129
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	175	9	92	1	17	26	26	438	0	3	350	147
Number of Lanes	0	2	1	0	1	0	0	2	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	3	2	3
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	2	3	3	1
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	3	2	1	3
HCM Control Delay	13.8	11.9	17.2	20.6
HCM LOS	B	B	C	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	SBLn1	SBLn2
Vol Left, %	15%	0%	0%	98%	0%	0%	3%	1%	0%
Vol Thru, %	85%	100%	100%	2%	100%	0%	38%	99%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	59%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	151	257	0	157	5	81	39	311	129
LT Vol	23	0	0	154	0	0	1	3	0
Through Vol	128	257	0	3	5	0	15	308	0
RT Vol	0	0	0	0	0	81	23	0	129
Lane Flow Rate	172	292	0	178	6	92	44	353	147
Geometry Grp	8	8	8	7	7	7	8	8	8
Degree of Util (X)	0.345	0.579	0	0.389	0.012	0.17	0.101	0.696	0.259
Departure Headway (Hd)	7.225	7.148	7.148	7.869	7.367	6.651	8.225	7.089	6.372
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	499	505	0	458	486	540	436	509	564
Service Time	4.963	4.885	4.885	5.604	5.101	4.385	5.98	4.824	4.107
HCM Lane V/C Ratio	0.345	0.578	0	0.389	0.012	0.17	0.101	0.694	0.261
HCM Control Delay	13.7	19.3	9.9	15.5	10.2	10.7	11.9	24.5	11.3
HCM Lane LOS	B	C	N	C	B	B	B	C	B
HCM 95th-tile Q	1.5	3.6	0	1.8	0	0.6	0.3	5.4	1

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
2: Redlands Bl & Cottonwood Av

EACP Conditions PM Peak Hour
Queues



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	32	42	34	406	578	63
v/c Ratio	0.16	0.19	0.17	0.26	0.40	0.05
Control Delay	27.2	11.7	27.5	2.3	6.4	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.2	11.7	27.5	2.3	6.4	2.1
Queue Length 50th (ft)	11	0	12	33	53	0
Queue Length 95th (ft)	34	25	35	62	211	13
Internal Link Dist (ft)	2323		2623		422	
Turn Bay Length (ft)				140		
Base Capacity (vph)	525	499	221	1589	1454	1249
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.08	0.15	0.26	0.40	0.05
Intersection Summary						

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
3: Redlands BI & Alessandro BI

EAC Conditions PM Peak Hour
HCM 6th AWSC

Intersection

Intersection Delay, s/veh91.5

Intersection LOS F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔		↔			↔	↔		↔	
Traffic Vol, veh/h	88	185	24	56	96	54	18	290	81	90	434	63
Future Vol, veh/h	88	185	24	56	96	54	18	290	81	90	434	63
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	92	193	25	58	100	56	19	302	84	94	452	66
Number of Lanes	0	1	1	0	1	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	2
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	1	2	2	1
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	2	1	1	2
HCM Control Delay	27.5	23	26.6	191
HCM LOS	D	C	D	F

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	6%	0%	32%	0%	27%	15%
Vol Thru, %	94%	0%	68%	0%	47%	74%
Vol Right, %	0%	100%	0%	100%	26%	11%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	308	81	273	24	206	587
LT Vol	18	0	88	0	56	90
Through Vol	290	0	185	0	96	434
RT Vol	0	81	0	24	54	63
Lane Flow Rate	321	84	284	25	215	611
Geometry Grp	7	7	7	7	6	6
Degree of Util (X)	0.713	0.17	0.669	0.053	0.522	1.341
Departure Headway (Hd)	8.703	7.944	9.316	8.417	9.777	7.896
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	417	455	390	428	371	465
Service Time	6.403	5.644	7.016	6.117	7.777	5.948
HCM Lane V/C Ratio	0.77	0.185	0.728	0.058	0.58	1.314
HCM Control Delay	30.3	12.3	28.9	11.6	23	191
HCM Lane LOS	D	B	D	B	C	F
HCM 95th-tile Q	5.5	0.6	4.7	0.2	2.9	27.6

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Redlands Alessandro TIA
4: Redlands Bl & Cactus Av

EAC Conditions PM Peak Hour
HCM 6th AWSC

Intersection

Intersection Delay, s/veh 14.6

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕	↗		↕			↕↕	↗		↕	↗
Traffic Vol, veh/h	189	14	33	0	7	10	12	203	0	20	336	134
Future Vol, veh/h	189	14	33	0	7	10	12	203	0	20	336	134
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	199	15	35	0	7	11	13	214	0	21	354	141
Number of Lanes	0	2	1	0	1	0	0	2	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	3	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	3	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	1	3
HCM Control Delay	13.5	10.2	11.5	16.7
HCM LOS	B	B	B	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	SBLn1	SBLn2
Vol Left, %	15%	0%	0%	98%	0%	0%	0%	6%	0%
Vol Thru, %	85%	100%	100%	2%	100%	0%	41%	94%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	59%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	80	135	0	194	9	33	17	356	134
LT Vol	12	0	0	189	0	0	0	20	0
Through Vol	68	135	0	5	9	0	7	336	0
RT Vol	0	0	0	0	0	33	10	0	134
Lane Flow Rate	84	142	0	204	10	35	18	375	141
Geometry Grp	8	8	8	7	7	7	8	8	8
Degree of Util (X)	0.158	0.266	0	0.4	0.018	0.057	0.035	0.642	0.213
Departure Headway (Hd)	6.795	6.719	6.719	7.064	6.569	5.86	7.136	6.164	5.429
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	527	533	0	510	544	609	499	585	659
Service Time	4.557	4.481	4.481	4.816	4.321	3.612	4.921	3.912	3.177
HCM Lane V/C Ratio	0.159	0.266	0	0.4	0.018	0.057	0.036	0.641	0.214
HCM Control Delay	10.8	11.9	9.5	14.5	9.4	9	10.2	19.4	9.7
HCM Lane LOS	B	B	N	B	A	A	B	C	A
HCM 95th-tile Q	0.6	1.1	0	1.9	0.1	0.2	0.1	4.6	0.8

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

Appendix H-2 - Redlands Blvd and Alessandro Blvd Intersection Review



TJW ENGINEERING, INC.
TRAFFIC ENGINEERING &
TRANSPORTATION PLANNING
CONSULTANTS

February 12, 2021

Mr. John Kerenyi, PE
Acting City Traffic Engineer
CITY OF MORENO VALLEY
14177 Frederick Street
Moreno Valley, CA 92553

Subject: Redlands Boulevard and Alessandro Boulevard Intersection Review in the City of Moreno Valley

Dear Mr. Kerenyi,

TJW Engineering, Inc. (TJW) is pleased to submit this focused intersection review associated with the proposed **Redlands Alessandro Commercial Plaza** project located at the southeast corner of the intersection of Redlands Boulevard and Alessandro Boulevard in the City of Moreno Valley. TJW has been working with the City and the developer in the preparation of the traffic impact analysis (*Traffic Impact Analysis: Redlands Alessandro Commercial Plaza*, dated October 15) for the project where the intersection of Redlands Boulevard and Alessandro Boulevard is one of several study intersections. The City is requesting TJW to provide a focused engineering study of the Redlands Boulevard and Alessandro Boulevard intersection knowing that traffic demand and circulation changes will occur in the next few years associated with the City's *World Logistics Center*.



The *World Logistics Center* is a 40.6-million sq.ft. warehousing complex that is planned to be built over the next 15 years and will require major infrastructure projects to accommodate the anticipated traffic demand and circulation changes. The project is located between SR-60 to the north, Redlands Boulevard to the west, Air Forbes Avenue to the south, and Gilman

Mr. Kerenyi, PE
 Redlands/Alessandro Traffic Review
 February 12, 2021
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Springs Road to the east. The project would surround the project intersection at Redlands Boulevard and Alessandro Boulevard and would influence traffic patterns in this part of the City. The *World Logistics Center* would sever the Alessandro Boulevard connection east of Merwin Street, just east of the project intersection. This future closure could eliminate as much as 30% to 40% of traffic at this intersection. Westbound traffic would be limited to local residential traffic only, which would affect movements in the eastbound, northbound, and southbound directions as well. Traffic patterns surrounding this intersection would also change.

The traffic impact analysis (TIA) analyzed the intersection and the project as a localized project on a microanalysis level per the City of Moreno Valley standards. The City is requesting that TJW provide an additional analysis focusing on the specific intersection.

Existing Conditions

The **Redlands Alessandro Commercial Plaza** is located on the southeast corner of the intersection of Redlands Boulevard and Alessandro Boulevard, an existing all-way stop controlled intersection. Both Redlands Boulevard and Alessandro Boulevard are arterials in the City's Circulation Element with a variety of cross-sections depending on the location within the City and proximity to SR-60. The project intersection is located in a relatively under developed area of Moreno Valley with neighborhood gas station, convenient stores and single family homes surrounding the intersection. All approaches are single lane entries, except for the south approach, which has two approach lanes with one lane ending at the intersection. The current lane configuration for the Redlands Boulevard and Alessandro Boulevard intersection is as follows:

Redlands Boulevard (N/S):

- Northbound: One shared through-left turn lane. One right turn lane.
- Southbound: One shared left turn/through/right turn lane.

Alessandro Boulevard (E/W):

- Eastbound: One shared through-left turn lane. One right turn pocket.
- Westbound: One shared left turn/through/right turn lane.

Figure 1 – Existing Lane Configuration



The intersection currently operates as an all-way stop with a single stop sign on each corner. The intersection is unimproved with sidewalk, ADA ramps, and curb and gutter missing. AC Berm is present on most of the corners and sidewalk is present on the northeast corner only where a gas station is located. Utility poles and overhead wires are present on all four corners of the intersection. Streetlights are located on utility poles at the two north approach corners. Speed limits are posted with 50 MPH signs on located on Redlands Boulevard and 40 MPH signs located on Alessandro Boulevard at the intersection. On-street parking is prohibited.

TJW was able to perform a field review of the site and to observe the existing conditions on Friday, December 18 during the AM peak hour. At the time of the observations, the intersection operated efficiently as an all-way stop controlled intersection. Due to the rural nature of the intersection, limited landscaping, clear corner returns, the sight distance at the intersection is clear and would meet sight distance requirements. With single entry lanes, the intersection operates efficiently with driver’s being able to see throughout the intersection. Pedestrians and bicyclists were not observed during the observation period.

Figure 2 – Existing AM/PM Peak Hour Volumes



Mr. Kerenyi, PE
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The TIA analyzed the existing all-way stop using *Trafficware's Synchro*, Version 10 analysis software and found the existing conditions to operate at level of service (LOS) D. However, during the observational period, the intersection seemed to operate at a better level of service.

Proposed Project

The proposed **Redlands Alessandro Commercial Plaza** project located at the southeast corner of the intersection will include a 2,000 square foot commercial building, a 2,500 square foot restaurant, and a gas station with 8 vehicle fueling positions. The project is planned to be open and generating trips in 2024. The TIA estimated that the project would generate new trips to the intersection during the AM and PM peak hours as shown **Figure 3**.

Figure 3 – Project AM/PM Peak Hour Volumes



The TIA analyzed the all-way stop condition with existing traffic volumes with the project (EP) and found the EP conditions to operate at LOS E in the AM and LOS D in the PM. Some improvements to the intersection and the installation of a traffic signal was recommended to better serve the intersection.

Engineering Study

To better review the operations of the intersection, TJW has utilized the traffic signal warrant process as outlined in the **California Manual on Uniform Traffic Control Devices** (2014 CA MUTCD, Revision 5). The warrant process helps guide a review of the traffic conditions, pedestrian movements, and physical characteristics of the intersection to determine if a traffic signal would be best suited for the intersection. Satisfying these guidelines doesn't necessarily mean the City is required to install a traffic signal; additional questions should be answered in order to determine if the traffic signal could improve the overall safety and/or operation of the intersection and surrounding roadway network.

The benchmarks to determine if a traffic signal would be prudent to be installed are given as nine (9) “traffic signal warrants” (Section 4C.01), which are:

CA MUTCD Traffic Signal Warrants	
Warrant 1	Eight-Hour Vehicular Volume
Warrant 2	Four-Hour Vehicular Volume
Warrant 3	Peak Hour
Warrant 4	Pedestrian Volume
Warrant 5	School Crossing
Warrant 6	Coordinated Signal System
Warrant 7	Crash Experience
Warrant 8	Roadway Network
Warrant 9	Intersection Near a Grade Crossing

Warrants 1, 2, 3 – Traffic Volumes

During the TIA process, AM and PM peak hour traffic counts were taken and obtained for the intersection on Tuesday, August 20, 2019. To accommodate the EP traffic volumes, the anticipated project traffic volumes were added to the existing traffic counts and are shown in **Figure 4**.

Figure 4 – Existing + Project AM/PM Peak Hour Volumes



With the available traffic volume data, the TIA and this analysis utilizes the peak hour volume-based warrant (Warrant 3) as the appropriate traffic signal warrant analysis. Warrant 3 is appropriate for this analysis because it provides specialized criteria for intersections with rural characteristics, such as this intersection.

Mr. Kerenyi, PE
 Redlands/Alessandro Traffic Review
 February 12, 2021
 Page 6

Warrant 3 evaluates the intersection on the highest hour of traffic, or peak hour. The evaluation determines if the minor street traffic suffers undue delay when entering or crossing the major street during the peak hour. Based on the Warrant 3 criteria, the intersection does satisfy the warrant to justify the installation of a traffic signal. Warrant 3 worksheets and graphs are located below within this letter.

Warrant 3 – Peak Hour - Satisfied

It should be noted that the World Logistics Center would sever the Alessandro Boulevard connection east of Merwin Street, possibly reducing as much as 30% to 40% of traffic at this intersection. If traffic subsides by this much, the traffic volumes would not satisfy Warrant 3.

Warrant 4 – Pedestrian Volume

Warrant 4 is intended for the application where the traffic volume is heavy enough that pedestrians experience excessive delay in trying to cross the street. Due to the rural nature and lack of pedestrian activity, this warrant is not satisfied.

Warrant 4 – Pedestrian Volume - Not Satisfied

Warrant 5 – School Crossing

Warrant 5 is the school crossing application, which focuses on pedestrians, but categorizes these pedestrians as school-aged pedestrians. Since school-aged pedestrians require special attention when crossing unsignalized locations, the requirements are lower to be satisfied. Due to the rural nature, lack of pedestrian activity, and distance from a school, this warrant is not satisfied.

Warrant 5 – School Crossing - Not Satisfied

Warrant 6 – Coordinated Signal System

Warrant 6 evaluates the roadway network of traffic signals. It is at times necessary to install traffic signals along an arterial to maintain proper platooning of vehicles. This warrant does not apply to this intersection, because the proposed intersection is not part of an arterial signal network. This warrant is not satisfied.

Warrant 6 – Coordinated Signal System - Not Satisfied

Warrant 7 – Crash Experience

Warrant 7 analyzes the crash history of the intersection to determine if a traffic signal would mitigate the severity and frequency of certain types of accidents. TJW was able to obtain accident data for the

Mr. Kerenyi, PE
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intersection from the City of Moreno Valley for the time period of January 1, 2015 through August 31, 2020. The accident data showed there were 11 reported incidents at the intersection over the 5.5 year-timeframe with less than five or more reported accidents in a 12-month period. The frequency of accidents correctable by a traffic signal is less than the warrant requirements. Details of the accident history is included below.

Warrant 7 – Crash Experience - Not Satisfied

Warrant 8 – Roadway Network

Warrant 8 is for those intersections where two major streets meet, but do not necessarily meet the minimum requirements of the seven previous warrants. With traffic patterns possibly changing in the near future, it would not be prudent to recommend that this warrant be satisfied.

Warrant 8 – Roadway Network - Not Satisfied

Warrant 9 – Intersection Near a Grade Crossing

Warrant 9 is intended for use at a location where none of the conditions described in the other eight traffic signal warrants are met, but the proximity to the intersection of a grade crossing on an intersection approach controlled by a STOP or YIELD sign is the principal reason to consider installing a traffic control signal. The intersection is not near a grade crossing; therefore, this warrant is not met.

Warrant 9 – Intersection Near a Grade Crossing - Not Satisfied

Findings and Recommendations

This analysis was conducted to provide a more focused review of the effects of the **Redlands Alessandro Commercial Plaza** on the Redlands Boulevard and Alessandro Boulevard intersection. The focused analysis determined that Warrant 3 of the CA MUTCD traffic signal warrant guidelines was warranted for the project's opening year scenario in 2024. However, other warrants, per the CA MUTCD, were not met in this review. The CA MUTCD is clear that satisfying any of these warrants doesn't necessarily mean the City is required to install a traffic signal.

As part of the *World Logistics Center* project, traffic patterns in the eastern portion of the City will significantly change over the next 15 years. The project sever the Alessandro Boulevard connection east of Merwin Street, just east of the project intersection. This future closure could eliminate as much as 30% to 40% of traffic at this intersection removing the need for a signalized intersection. Westbound traffic would be limited to local residential traffic only. Traffic patterns at this intersection, as well as

TJW Engineering, Inc.
 HDI19002 Redlands Alessandro Warrant Review 021221


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traffic patterns around the area, would change greatly affecting the operations at the Redlands Boulevard and Alessandro Boulevard intersection.

Based on this traffic engineering review, TJW Engineering recommends that the existing all-way stop intersection be maintained and not install a traffic signal at this time. As traffic conditions change, and when they can be evaluated for long-term purposes, additional analysis can be done to reevaluate the intersection operations.

Please contact us at (949) 878-3509 if you have any questions regarding this analysis.

Sincerely,



Thomas Wheat, PE, TE
President

Registered Civil Engineer #69467
Registered Traffic Engineer #2565



Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

EP CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: **AM**

Major Street: **Redlands Blvd (NS)**

Minor Street: **Alessandro Blvd (EW)**

Total of Both Approaches (VPH): **897**

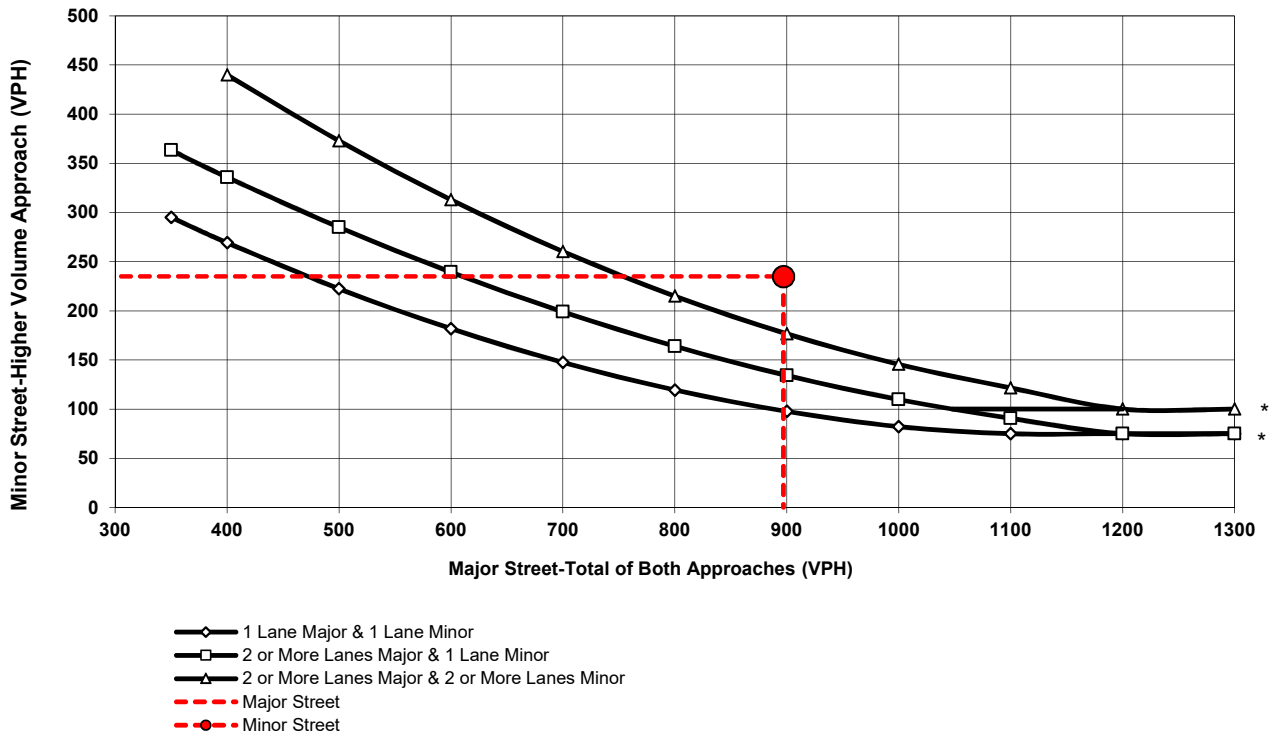
Higher Volume Approach (VPH): **235**

Number of Approach Lanes: **1**

Number of Approach Lanes: **1**

SIGNAL WARRANT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:

100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**EP Conditions
AM Peak Hour Volume Warrant
Alessandro Blvd/Redlands Blvd**

EP CONDITIONS PEAK HOUR VOLUME WARRANT RURAL CONDITIONS

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

Peak Hour: PM

Major Street: Redlands Blvd (NS)

Minor Street: Alessandro Blvd (EW)

Total of Both Approaches (VPH): **866**

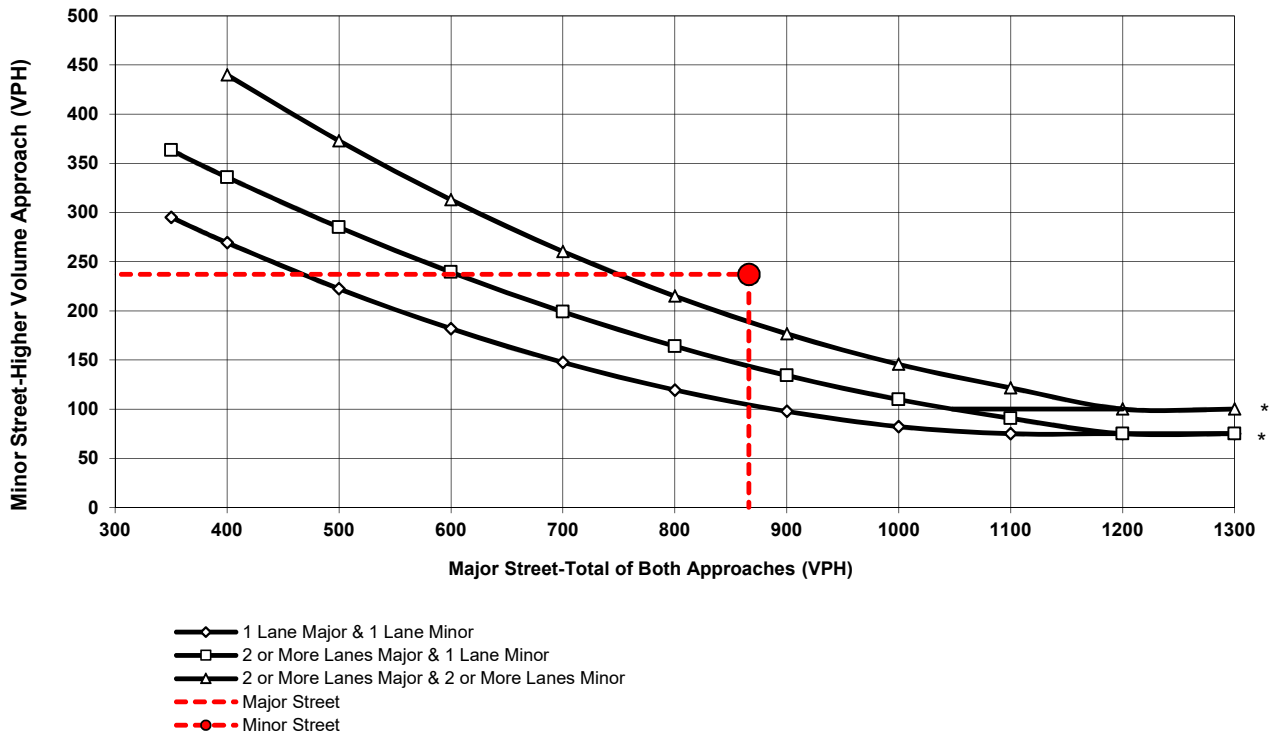
Higher Volume Approach (VPH): **237**

Number of Approach Lanes: **1**

Number of Approach Lanes: **1**

SIGNAL WARRANT SATISFIED

Figure 4C-4. Peak Hour Warrant (Rural)



* Note:

100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 75 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2, 3 and 4 (Mar 29, 2019)

**EP Conditions
PM Peak Hour Volume Warrant
Alessandro Blvd/Redlands Blvd**

From 1/1/2015 to 8/31/2020

Total Collisions: 11
 Injury Collisions: 6
 Fatal Collisions: 0

Collision Summary Report

12/17/20

REDLANDS BLVD & ALESSANDRO BLVD

Page 1 of 2

MV150150376	1/15/2015	20:00	Thursday	REDLANDS BLVD - ALESSANDRO BLVD	0'	Direction: Not Stated	Dark - Street Ligh	Clear	Pty at Fault:1
	Other		Other Motor Vehicle	Unsafe Starting or Backing	22106	Hit & Run: Misde	Property Damage Only	# Inj: 0	# Killed: 0
Party 1 Driver	South	Stopped In Road		Age:	TOYOTA	COROLLA	Passenger Car, Station Wagon, Jeep		
Veh Type:		Sobriety: Impairment Not Kno		Assoc Factor:		Not Stated			
Party 2 Driver	North	Stopped In Road		Male	Age: 40	2011 NISSAN	ALTIMA	Passenger Car, Station Wagon, Jeep	
Veh Type:		Sobriety: HNBD		Assoc Factor: None Apparent		Lap/Shoulder Harness Used	Cell Phone Not In Use		
MV150700364	3/11/2015	17:58	Wednesday	ALESSANDRO BLVD - REDLANDS BLVD	0'	Direction: Not Stated	Daylight	Clear	Pty at Fault:1
	Broadside		Other Motor Vehicle	Auto R/W Violation	21800A	Hit & Run: Misde	Property Damage Only	# Inj: 0	# Killed: 0
Party 1 Driver	West	Proceeding Straight		Age:	2002 CHEVROLET	ASTRO	Mini Van		
Veh Type:		Sobriety: Impairment Not Kno		Assoc Factor: None Apparent		Not Stated			
Party 2 Driver	South	Proceeding Straight		Female	Age: 35	2006 MAZDA	2.3	Passenger Car, Station Wagon, Jeep	
Veh Type:		Sobriety: HNBD		Assoc Factor: None Apparent		Lap/Shoulder Harness Used	Cell Phone Not In Use		
MV151630320	6/12/2015	18:00	Friday	REDLANDS BLVD - ALESSANDRO BLVD	45'	Direction: South	Daylight	Clear	Pty at Fault:1
	Rear-End		Other Motor Vehicle	Unsafe Speed	22350	Hit & Run: No	Complaint of Pain	# Inj: 1	# Killed: 0
Party 1 Driver	North	Slowing / Stopping		Female	Age: 53	2005 KIA	SORENTO	Sport Utility Vehicle	
Veh Type:		Sobriety: HNBD		Assoc Factor: None Apparent		Lap/Shoulder Harness Used	Cell Phone Not In Use		
Party 2 Driver	North	Stopped In Road		Male	Age: 45	2015 NISSAN	ALTIMA	Passenger Car, Station Wagon, Jeep	
Veh Type:		Sobriety: HNBD		Assoc Factor: None Apparent		Lap/Shoulder Harness Used	Cell Phone Not In Use		
MV153480054	12/14/2015	07:20	Monday	ALESSANDRO BLVD - REDLANDS BLVD	0'	Direction: Not Stated	Daylight	Clear	Pty at Fault:3
	Broadside		Other Motor Vehicle	Auto R/W Violation	21802A	Hit & Run: No	Complaint of Pain	# Inj: 4	# Killed: 0
Party 1 Driver	North	Proceeding Straight		Female	Age: 49	2009 HONDA	PILOT	Sport Utility Vehicle	
Veh Type:		Sobriety: HNBD		Assoc Factor: Inattention		Lap/Shoulder Harness Used	Cell Phone Not In Use		
Party 2 Driver	West	Proceeding Straight		Female	Age: 41	2015 NISSAN	PATHFINDER	Mini Van	
Veh Type:		Sobriety: HNBD		Assoc Factor: None Apparent		Lap/Shoulder Harness Used	Cell Phone Not In Use		
Party 3 Driver	South	Stopped In Road		Male	Age: 58	1999 CHEVROLET	CORVETTE	Passenger Car, Station Wagon, Jeep	
Veh Type:		Sobriety: HNBD		Assoc Factor: None Apparent		Lap/Shoulder Harness Used	Cell Phone Not In Use		
MV162160370	8/3/2016	18:25	Wednesday	ALESSANDRO BLVD - REDLANDS BLVD	8'	Direction: West	Daylight	Clear	Pty at Fault:1
			Other Motor Vehicle	Traffic Signals and Signs	22450A	Hit & Run: Misde	Property Damage Only	# Inj: 0	# Killed: 0
Party 1 Driver	East	Proceeding Straight		Male	Age:	NISSAN	MAXIMA	Unknown Hit and Run Vehicle Involvem	
Veh Type:		Sobriety: Impairment Not Kno		Assoc Factor: None Apparent		Not Stated			
Party 2 Driver	South	Proceeding Straight		Female	Age: 58	2014 HONDA	ACC	Passenger Car, Station Wagon, Jeep	
Veh Type:		Sobriety: HNBD		Assoc Factor: None Apparent		Lap/Shoulder Harness Used	Cell Phone Not In Use		

Attachment: Appendices G - H to Exhibit A to Resolution 2021-15 (4405 : FARM MARKET EXPANSION)

REDLANDS BLVD & ALESSANDRO BLVD

MV163590094	12/24/2016	09:15	Saturday	REDLANDS BLVD - ALESSANDRO BLVD			0'	Direction: Not Stated	Daylight	Clear	Pty at Fault:0
	Broadside		Other Motor Vehicle	Traffic Signals and Signs			22450A	Hit & Run: No	Complaint of Pain	# Inj: 1	# Killed: 0
Party 1 Driver Veh Type:	West	Proceeding Straight		Female	Age: 21	2012 FORD	FOCUS	Passenger Car, Station Wagon, Jeep			
		Sobriety: HNBD		Assoc Factor: None Apparent			Lap/Shoulder Harness Used		Cell Phone Not In Use		
Party 2 Driver Veh Type:	South	Proceeding Straight		Male	Age: 35	1996 FORD	EXPLORER	Passenger Car, Station Wagon, Jeep			
		Sobriety: HNBD		Assoc Factor: None Apparent			Lap/Shoulder Harness Used		Cell Phone Not In Use		
MV170900062	3/31/2017	06:34	Friday	REDLANDS BLVD - ALESSANDRO BLVD			0'	Direction: Not Stated	Daylight	Clear	Pty at Fault:1
	Rear-End		Other Motor Vehicle	Unsafe Speed			22350	Hit & Run: No	Other Visible Injury	# Inj: 1	# Killed: 0
Party 1 Driver Veh Type:	North	Slowing / Stopping		Male	Age: 26	2009 FORD	FUSION	Passenger Car, Station Wagon, Jeep			
		Sobriety: HNBD		Assoc Factor: None Apparent			Lap/Shoulder Harness Used		Cell Phone Not In Use		
Party 2 Driver Veh Type:	North	Stopped In Road		Male	Age: 50	2003 FORD	RANGER	Pickups & Panels			
		Sobriety: HNBD		Assoc Factor: None Apparent			Lap/Shoulder Harness Used		Cell Phone Not In Use		
MV180350348	2/4/2018	21:47	Sunday	ALESSANDRO BLVD - REDLANDS BLVD			0'	Direction: Not Stated	Daylight	Clear	Pty at Fault:1
	Broadside		Other Motor Vehicle	Driving Under Influence			23152A	Hit & Run: No	Property Damage Only	# Inj: 0	# Killed: 0
Party 1 Driver Veh Type:	South	Proceeding Straight		Male	Age: 37	2012 TOYOTA	TUNDRA	Pickups & Panels			
		Sobriety: HBD Under Influence		Assoc Factor: None Apparent			Lap/Shoulder Harness Used		Cell Phone Not In Use		
Party 2 Driver Veh Type:	West	Proceeding Straight		Female	Age: 50	1994 CHEVROLET	S-10	Pickups & Panels			
		Sobriety: HNBD		Assoc Factor: None Apparent			Lap/Shoulder Harness Used		Cell Phone Not In Use		
MV182460054	9/3/2018	03:00	Monday	ALESSANDRO BLVD - REDLANDS BLVD			0'	Direction: Not Stated	Dark - No Street	Clear	Pty at Fault:1
	Rear-End		Parked Motor Vehicle	Unsafe Speed			22350	Hit & Run: Misd	Property Damage Only	# Inj: 0	# Killed: 0
Party 1 Driver Veh Type:	East	Proceeding Straight			Age:	1994 TOYOTA	CAMRY	Passenger Car, Station Wagon, Jeep			
		Sobriety: Not Applicable		Assoc Factor: None Apparent			Not Stated	Cell Phone Not In Use			
Party 2 Parked Vehicle Veh Type:		Parked			Age:	1998 TOYOTA	CAMRY	Passenger Car, Station Wagon, Jeep			
		Sobriety: Not Applicable		Assoc Factor: None Apparent			Not Stated	Cell Phone Not In Use			
MV192280072	8/16/2019	07:58	Friday	REDLANDS BLVD - ALESSANDRO BLVD			60'	Direction: North	Daylight	Clear	Pty at Fault:1
	Rear-End		Other Motor Vehicle	Unsafe Speed			22350	Hit & Run: No	Complaint of Pain	# Inj: 1	# Killed: 0
Party 1 Driver Veh Type:	South	Proceeding Straight		Male	Age: 60	2013 HONDA	CIVIC	Passenger Car, Station Wagon, Jeep			
		Sobriety: HNBD		Assoc Factor: None Apparent			Lap/Shoulder Harness Used		Cell Phone Not In Use		
Party 1 Driver Veh Type:	South	Proceeding Straight		Male	Age: 60	2013 HONDA	CIVIC	Passenger Car, Station Wagon, Jeep			
		Sobriety: HNBD		Assoc Factor: None Apparent			Lap/Shoulder Harness Used		Cell Phone Not In Use		
Party 2 Driver Veh Type:	South	Stopped In Road		Female	Age: 47	2012 HONDA	CIVIC	Passenger Car, Station Wagon, Jeep			
		Sobriety: HNBD		Assoc Factor: None Apparent			Lap/Shoulder Harness Used		Cell Phone Not In Use		
Party 2 Driver Veh Type:	South	Stopped In Road		Female	Age: 47	2012 HONDA	CIVIC	Passenger Car, Station Wagon, Jeep			
		Sobriety: HNBD		Assoc Factor: None Apparent			Lap/Shoulder Harness Used		Cell Phone Not In Use		

Settings for Query:

Start Date: 1/1/2015, End Date: 8/31/2020 (on PD Data)

Street: REDLANDS BLVD

Cross Street: ALESSANDRO BLVD

Intersection Related: True

City: Moreno Valley

Sorted By: Date and Time

Appendix H-3 - Vehicle Miles Traveled (VMT) Analysis



TJW ENGINEERING, INC.
 TRAFFIC ENGINEERING &
 TRANSPORTATION PLANNING
 CONSULTANTS

September 1, 2020

Mr. Harry Heady
 HEADY DESIGN INC.
 7365 Carnelian St, Suite 239
 Rancho Cucamonga, CA 91730

SUBJECT: Vehicle Miles Traveled (VMT) Analysis, City of Moreno Valley

Dear Mr. Heady,

TJW Engineering, Inc. (TJW) is pleased to submit this Vehicle Miles Traveled (VMT) analysis for the proposed Redlands Alessandro Commercial Plaza project located at the southeast corner of the intersection of Redlands Boulevard and Alessandro Boulevard. The project consists of a 1,920 square foot commercial building, a 2,580 square foot restaurant, and a gas station with 8 vehicle fueling positions. The purpose of this memorandum is to supplement the Traffic Impact Analysis (TIA) dated March 3rd, 2020 by providing a VMT analysis for the proposed project.

Senate Bill (SB) 743 was adopted in 2013 requiring the Governor's Office of Planning and Research (OPR) to identify new metrics for identifying and mitigating transportation impacts within the California Environmental Quality Act (CEQA). For land use projects, OPR has identified Vehicle Miles Traveled (VMT) as the new metric for transportation analysis under CEQA. The regulatory changes to the CEQA guidelines that implement SB 743 were approved on December 28th, 2018 with an implementation date of July 1st, 2020 as the new metric.

The City of Moreno Valley adopted its revised Traffic Impact Analysis Preparation Guide (June 2020). The document outlines guidelines for CEQA analysis including screening criteria and requirements for VMT assessment of land use projects based on the Western Riverside Council of Governments (WRCOG) Implementation Pathway Study (March 2019).

The City's TIA Guide indicates projects serving the local community less than 50,000 square feet may be presumed to have a less than significant impact. It is anticipated that the proposed project will serve local residents within the vicinity providing enhanced convenience. This additional convenience would reduce the need for residents to travel longer distances. Therefore, trip lengths within the region would be reduced, and vehicle travel would decrease. Thus, the project can be considered local serving retail and will not have a significant VMT impact.

Mr. Heady
Redlands Alessandro VMT Analysis
September 1, 2020
Page 2

This memo provides an overview of VMT analysis for the proposed project for consistency with the new CEQA guidelines. As outlined in the City’s newly adopted TIA Guide, land use projects serving the local community less than 50,000 square feet may be presumed to have less than a significant impact on VMT and does not require additional VMT analysis.

Please contact us at (949) 878-3509 if you have any questions regarding this analysis.

Sincerely,

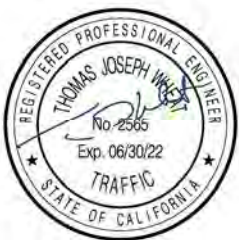


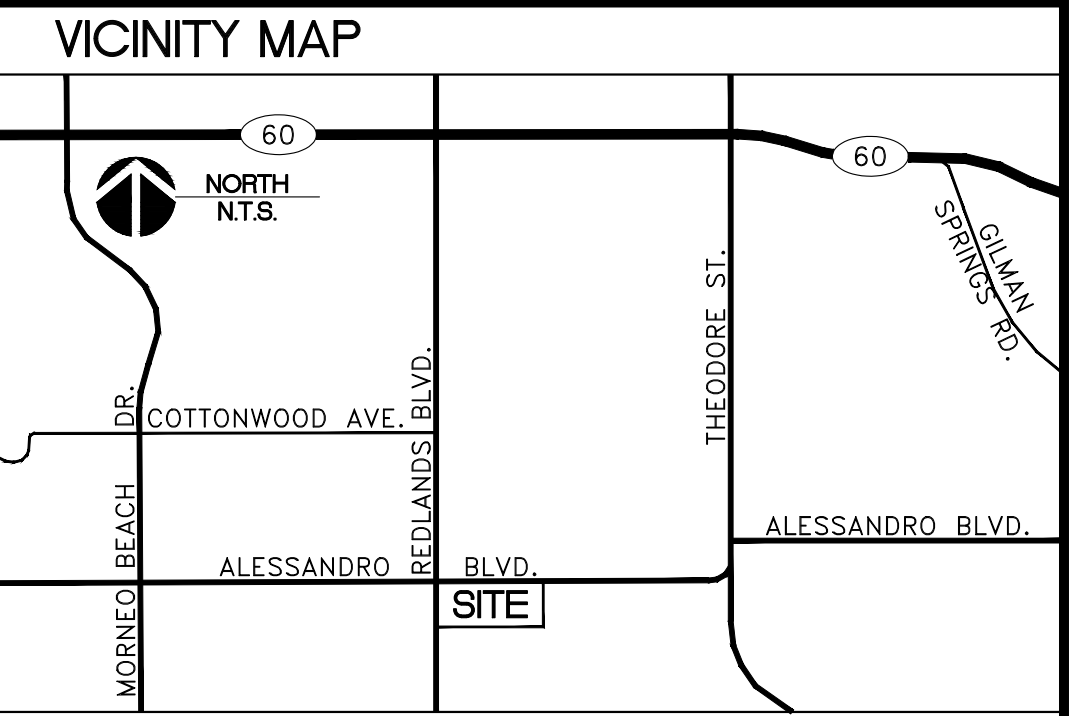
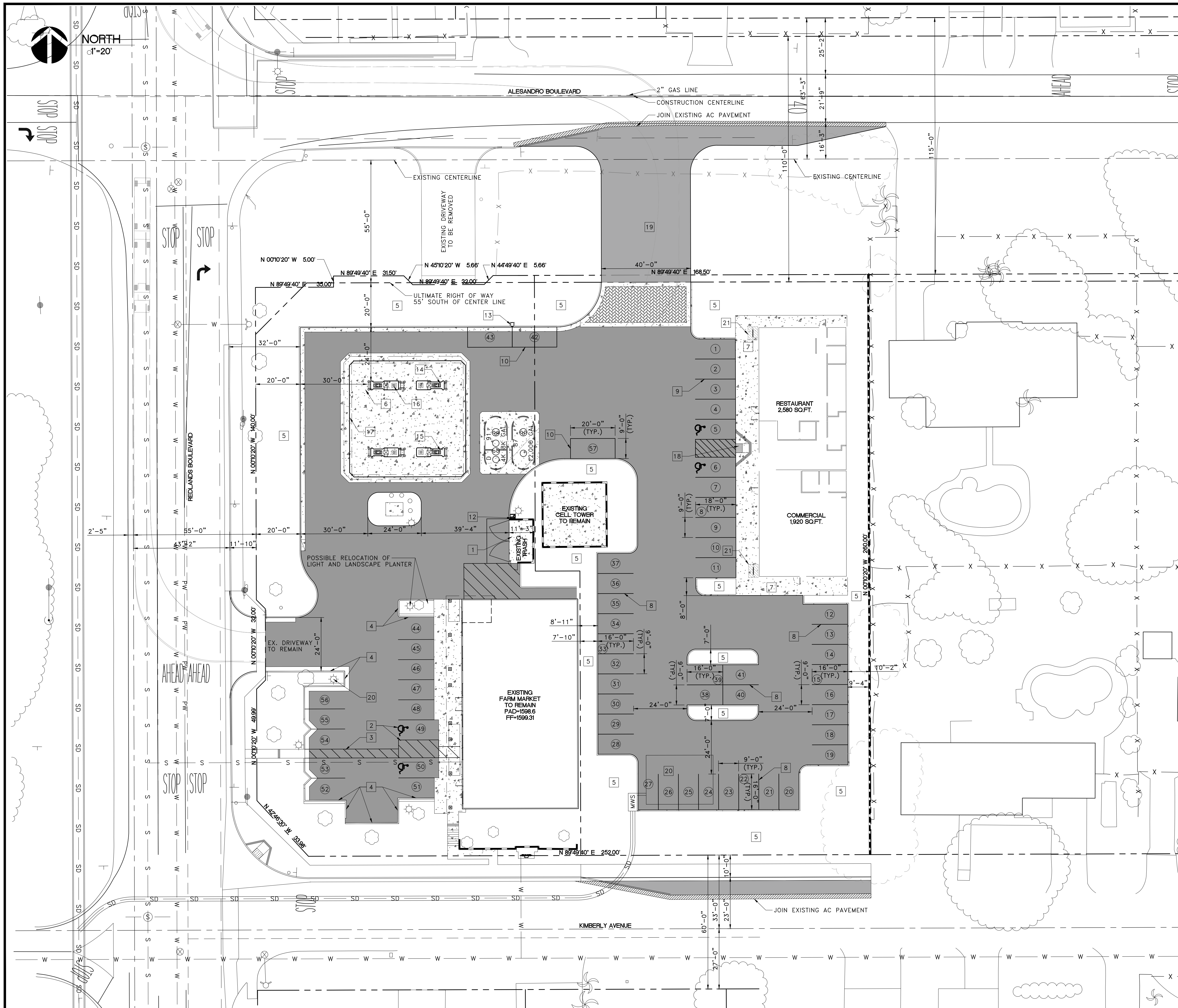
Thomas Wheat, PE, TE
President

Registered Civil Engineer #69467
Registered Traffic Engineer #2565



David Chew, PTP
Transportation Planner

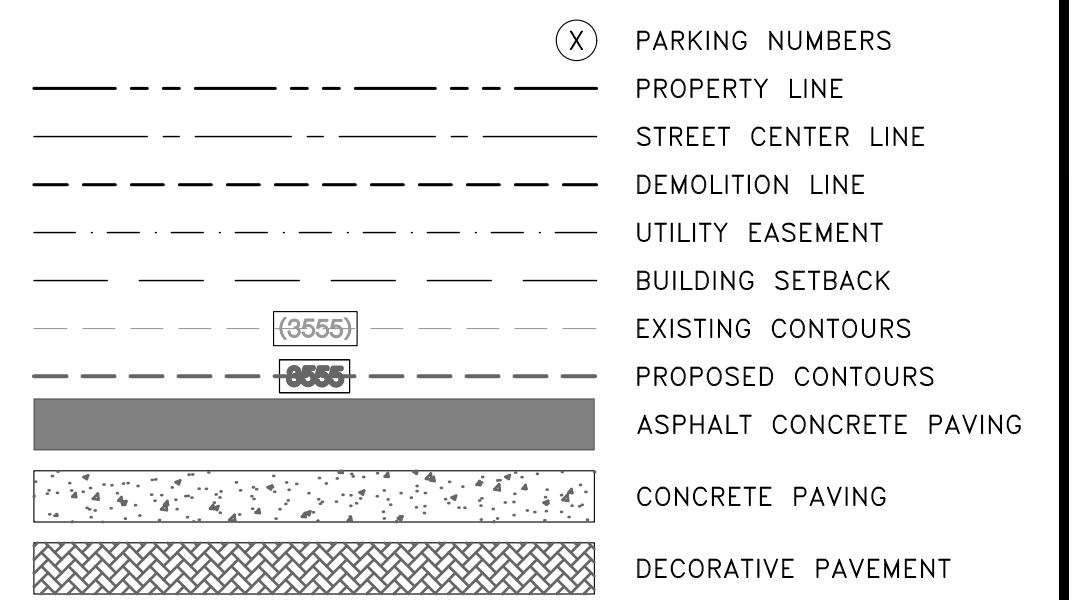




SITE PLAN NOTES

- 1 EXISTING ADA ACCESSIBLE TRASH ENCLOSURE 20'-0" X 11'-0".
- 2 EXISTING ADA ACCESSIBLE PARKING STALL WITH ADA SIGNAGE.
- 3 EXISTING ADA PATH OF TRAVEL.
- 4 EXISTING 6" CURB AND GUTTER.
- 5 PROPOSED LANDSCAPE WITH NEW 6" CONCRETE CURBS.
- 6 PROPOSED 6" # BOLLARD. (TYPICAL OF 9)
- 7 PROPOSED SIDEWALK WITH CURB & GUTTER.
- 8 PROPOSED 9'-0" X 16'-0" PARKING STALLS. (TYP. OF)
- 9 PROPOSED 9'-0" X 18'-0" PARKING STALLS. (TYP. OF)
- 10 PROPOSED 9'-0" X 20'-0" PARKING STALLS. (TYP. OF)
- 11 PROPOSED YARD LIGHTS. (TYP. OF 6)
- 12 PROPOSED VENT RISERS.
- 13 PROPOSED AIR & WATER.
- 14 PROPOSED 3+1 DISPENSER WITH DIESEL.
- 15 PROPOSED 3+1 DISPENSER WITH E-85.
- 16 PROPOSED CANOPY COLUMNS.
- 17 PROPOSED 50'-0" X 50'-0" CANOPY.
- 18 PROPOSED ADA COMPLIANT CONCRETE RAMP.
- 19 PROPOSED 40'-0" WIDE DRIVE WAY.
- 20 PROPOSED UNDERGROUND STORM WATER VAULT (STORM TRAP) VBMP=2,550 CF.
- 21 PROPOSED BICYCLE PARKING WITH 2 BIKE MIN. CAPACITY.

LEGEND



HEADY DESIGN INC.
 7365 Camelian St, Suite 233
 Rancho Cucamonga, CA 91730
 Phone: (909) 581-1202
 Email: Hheady@headydesign.com

FARM MARKET
 14058 REDLANDS BLVD
 MORENO VALLEY, CA 92555

PROPOSED SITE PLAN

Rev. #	Date	Revision Description

Documents prepared by Heady Design Inc. including this document, are to be used only for the specific project and specific use for which they were intended. Any other use, reproduction, or distribution by owner or by any other party, without the expressed written consent of Heady Design Inc. is deemed unauthorized and the users specifically intended, user will hold Heady Design Inc. harmless from all claims and losses.

JOB NO: FMG-001
DRAWN BY: SK
DATE: 01/08/2020
SCALE: 1"=20'

DRAWING: SP1

Checked: S:\NAK PRODCS\2020-001 - Moreno Valley Design\Bidding Drawings\2020-001_SFP_SITE_Plan.dwg, P:\NAK-001_SFP_SITE_Plan.dwg
 User: NAK
 Last Modified: Jan 29, 2020 - 11:45

VIA TELECONFERENCE ONLY
PURSUANT TO COVID-19
GOVERNOR EXECUTIVE ORDER N-29-20

**NOTICE OF PUBLIC HEARING AND
ENVIRONMENTAL NOTICE OF AVAILABILITY**

NOTICE IS HEREBY GIVEN that a teleconferenced Public Hearing will be held by the Planning Commission of the City of Moreno Valley on the date and time set forth below:

Date and Time: May 13, 2021 at 7:00 p.m.
Location: **VIA TELECONFERENCE ONLY**
Go to <http://morenovalleyca.ig2.com/Citizens/default.aspx> for instructions.
Item: PEN19-0057 Master Plot Plan
PEN19-0058 Plot Plan
PEN19-0059 Conditional Use Permit
Applicant: Parmjit Singh
Property Owner: Parmjit Singh
APN: 478-430-029, -030 and -031
Location: 14058 Redlands Boulevard (southeast corner Alessandro Blvd. and Redlands Blvd.)
Proposal: Applicant is requesting approval of a Master Plot Plan to expand an existing market by adding a 2,580 square foot Multi-tenant build, with retail and restaurant uses, and a vehicle fueling station.
Council District: 3

Environmental Determination: The project has been evaluated against the criteria set forth in the California Environmental Quality Act (CEQA) and CEQA Guidelines and staff has determined that a Mitigated Negative Declaration is the appropriate environmental document for the proposed project.

The Draft Initial Study/Mitigated Negative Declaration is being circulated for public review by responsible and trustee agencies and other interested parties for a review period commencing April 23, 2021, through May 13, 2021. The documents can be obtained in electronic format via email by request. The final document may be inspected by appointment at the Community Development Department at 14177 Frederick Street, Moreno Valley, California by calling (951) 413-3206 during normal business hours (7:30 a.m. to 5:30 p.m., Monday through Thursday).

PUBLIC TESTIMONY: All interested parties will be provided an opportunity to submit oral testimony during the teleconferenced public hearing and/or provide written testimony during or prior to or at the teleconferenced public hearing. The application file and related environmental documents may be inspected by appointment at the Community Development Department at 14177 Frederick Street, Moreno Valley, California by calling (951) 413-3206 during normal business hours (7:30 a.m. to 5:30 p.m., Monday through Thursday).

COVID-19 – IMPORTANT NOTICES: Please note that due to the COVID-19 pandemic situation, staff will attempt to make reasonable arrangements to ensure accessibility to inspect the aforementioned records. **In addition, special instructions on how to effectively participate in the teleconferenced Public Hearing, as approved by Governor Executive Order No. N-29-20, will be posted at <http://morenovalleyca.ig2.com/Citizens/default.aspx> and will be described in the Planning Commission agenda.**

PLEASE NOTE: The Planning Commission may consider and approve changes to the proposed items under consideration during the teleconferenced Public Hearing.

GOVERNMENT CODE § 65009 NOTICE: If you challenge any of the proposed actions taken by the Planning Commission in court, you may be limited to raising only those issues you or someone else raised during the teleconferenced Public Hearing described in this notice, or in written correspondence delivered to the Planning Division of the City of Moreno Valley during or prior to, the teleconferenced Public Hearing.

ACCESSIBILITY: Upon request and in compliance with the Americans with Disabilities Act of 1990, person with a disability who requires a modification or accommodation in order to participate in a meeting should direct such request to James Verdugo, ADA Coordinator, at (951) 413-3350 at least 48 hours before the meeting. The 48-hour notification will enable the City to make reasonable arrangements to ensure accessibility to this meeting.

STAFF CONTACT: If you have questions regarding this public hearing, please contact Jeff Bradshaw, Associate Planner, by telephone at (951) 413-3224 or via email at jeffreyb@moval.org.

	Press-Enterprise	April 23, 2021
Patty Nevins Planning Official Community Development Department	Newspaper	Date of Publication

Attachment: Exhibit B to Resolution 2021-15 - Public Notice (4405 : FARM MARKET EXPANSION)

RESOLUTION NUMBER 2021-16

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF MORENO VALLEY, CALIFORNIA, APPROVING MASTER PLOT PLAN PEN19-0057 FOR THE FARM MARKET EXPANSION PROJECT LOCATED AT THE SOUTHEAST CORNER OF REDLANDS BOULEVARD AND ALESSANDRO BOULEVARD (APN'S: 478-030-029, -030, AND -031)

WHEREAS, the City of Moreno Valley ("City") is a general law city and a municipal corporation of the State of California; and

WHEREAS, Parmjit Singh, ("Developer") has filed an application for the approval of Master Plot Plan PEN19-0057 ("Application") for the expansion of the existing Farm Market site to include a new multi-tenant retail building and vehicle service station with 4 fuel pumps and 8 fueling stations ("Project"), all located at the southeast corner of Redlands Boulevard and Alessandro Boulevard, APN's 478-030-029, -030, and -031 ("Site"); and

WHEREAS, Section 9.02.070 (Plot Plan) of the Moreno Valley Municipal Code acknowledges that the purpose of plot plans is to provide a mechanism by which all new construction of industrial, commercial or multiple-family residential can be reviewed when not subject to other discretionary review processes which have review authority over project design; and

WHEREAS, the Application has been evaluated in accordance with Section 9.02.070 (Plot Plan) of the Municipal Code with consideration given to the City's General Plan, Zoning Ordinance, and other applicable laws and regulations; and

WHEREAS, Section 9.02.070 of the Municipal Code imposes conditions of approval upon projects for which a Plot Plan is required, which conditions may be imposed by the Planning Commission to address on-site improvements, off-site improvements, the manner in which the site is used and any other conditions as may be deemed necessary to protect the public health, safety and welfare and ensure that the proposed Project will be developed in accordance with the purpose and intent of Title 9 ("Planning and Zoning") of the Municipal Code; and

WHEREAS, Staff has presented for the Planning Commission's consideration Conditions of Approval to be imposed upon Master Plot Plan PEN19-0057, which conditions have been deemed necessary to protect the public health, safety and welfare and ensure that the proposed Project will be developed in accordance with the purpose and intent of Title 9 (Planning and Zoning) of the Municipal Code; and

WHEREAS, pursuant to the provisions of Section 9.02.200 (Public Hearing and Notification Procedures) of the Municipal Code and Government Code section 65905, a public hearing was scheduled for May 13, 2021, and notice thereof was duly published and posted, and mailed to all property owners of record within 600 feet of the Site; and

WHEREAS, on May 13, 2021, the public hearing to consider the Application was duly conducted by the Planning Commission at which time all interested persons were provided with an opportunity to testify and to present evidence; and

WHEREAS, consistent with the requirements of Section 9.02.070 (Plot Plan) of the Municipal Code, at the public hearing the Planning Commission considered Conditions of Approval to be imposed upon Master Plot Plan PEN19-0057, which conditions were prepared by Planning Division staff who deemed said conditions to be necessary to protect the public health, safety and welfare and to ensure the proposed Project will be developed in accordance with the purpose and intent of Title 9 (“Planning and Zoning”) of the Municipal Code; and

WHEREAS, at the public hearing, the Planning Commission considered whether each of the requisite findings specified in Section 9.02.070 of the Municipal Code and set forth herein could be made with respect to the proposed Project as conditioned by Conditions of Approval; and

WHEREAS, on May 13, 2021, in accordance with the provisions of the California Environmental Quality Act (CEQA¹) and CEQA Guidelines,² the Planning Commission approved Resolution 2021-15.

NOW, THEREFORE, THE PLANNING COMMISSION OF THE CITY OF MORENO VALLEY, CALIFORNIA, DOES HEREBY RESOLVE AS FOLLOWS:

Section 1. Recitals and Exhibits

That the foregoing Recitals and attached Exhibits are true and correct and are hereby incorporated by this reference.

Section 2. Notice

That pursuant to Government Code section 66020(d)(1), notice is hereby given that the proposed project is subject to certain fees, dedications, reservations and other exactions as provided herein.

Section 3. Evidence

That the Planning Commission has considered all of the evidence submitted into the administrative record for the proposed Plot Plan, including, but not limited to, the following:

- (a) Moreno Valley General Plan and all other relevant provisions contained therein;
- (b) Title 9 (Planning and Zoning) of the Moreno Valley Municipal Code and all other relevant provisions referenced therein;

¹ Public Resources Code §§ 21000-21177

² 14 California Code of Regulations §§15000-15387

- (c) Application for the approval of Master Plot Plan PEN19-0057 and all documents, records and references contained therein;
- (d) Conditions of Approval for Master Plot Plan PEN19-0057, attached hereto as Exhibit A;
- (e) Staff Report prepared for the Planning Commission's consideration and all documents, records and references related thereto, and Staff's presentation at the public hearing;
- (f) Testimony and/or comments from Applicant and its representatives during the public hearing; and
- (g) Testimony and/or comments from all persons that was provided in written format or correspondence, at, or prior to, the public hearing.

Section 4. Findings

That based on the foregoing Recitals and the Evidence contained in the Administrative Record as set forth above, the Planning Commission makes the following findings in approving Master Plot Plan PEN19-0057.

- (a) The proposed Project is consistent with the goals, objectives, policies and programs of the General Plan;
- (b) The proposed Project complies with all applicable zoning and other regulations;
- (c) The proposed Project will not be detrimental to the public health, safety or welfare or materially injurious to properties or improvements in the vicinity;
- (d) The location, design and operation of the proposed Project will be compatible with existing and planned land uses in the vicinity.

Section 5. Approval

That based on the foregoing Recitals, Evidence contained in the Administrative Record and Findings set forth above, the Planning Commission hereby approves Master Plot Plan PEN19-0057 subject to the Conditions of Approval for Master Plot Plan PEN19-0057 attached hereto as Exhibit A.

Section 6. Repeal of Conflicting Provisions

That all the provisions as heretofore adopted by the Planning Commission that are in conflict with the provisions of this Resolution are hereby repealed.

Section 7. Severability

That the Planning Commission declares that, should any provision, section, paragraph, sentence or word of this Resolution be rendered or declared invalid by any final court action in a court of competent jurisdiction or by reason of any preemptive legislation, the remaining provisions, sections, paragraphs, sentences or words of this Resolution as hereby adopted shall remain in full force and effect.

Section 8. Effective Date

That this Resolution shall take effect immediately upon the date of adoption.

Section 9. Certification

That the Secretary of the Planning Commission shall certify to the passage of this Resolution.

PASSED AND ADOPTED THIS _____ day of _____, 2021.

CITY OF MORENO VALLEY
PLANNING COMMISSION

Patricia Korzec, Chairperson

ATTEST:

Patty Nevins
Planning Official

APPROVED AS TO FORM:

Steven B. Quintanilla
Interim City Attorney

Exhibits:
Exhibit A: Conditions of Approval PEN19-0057

Attachment: Resolution 2021-16 - Master Plot Plan [Revision 4] (4405 : FARM MARKET EXPANSION)

Exhibit A

CONDITIONS OF APPROVAL

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Plot Plan (PEN19-0057)

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CITY OF MORENO VALLEY
 CONDITIONS OF APPROVAL
 Plot Plan (PEN19-0057)

EFFECTIVE DATE:

EXPIRATION DATE:

COMMUNITY DEVELOPMENT DEPARTMENTPlanning Division

1. Master Plot Plan PEN19-0057 is approved for development of a commercial center to include an existing neighborhood market, a 3,850 square foot multi-tenant retail building (2,350 SF restaurant / 1,500 SF retail), and a vehicle fueling station to include a canopy and eight (8) fuel pumps subject to approval of related applications Plot Plan PEN19-0058 and Conditional Use Permit PEN19-0059.
2. This approval shall expire three years after the approval date of this project unless used or extended as provided for by the City of Moreno Valley Municipal Code; otherwise it shall become null and void and of no effect whatsoever. Use means the beginning of substantial construction contemplated by this approval within the three-year period, which is thereafter pursued to completion, or the beginning of substantial utilization contemplated by this approval. (MC 9.02.230)
3. All landscaped areas shall be maintained in a healthy and thriving condition, free from weeds, trash and debris. (MC 9.02.030)
4. Any signs indicated on the submitted plans are not included with this approval. Any signs, whether permanent (e.g. wall, monument) or temporary (e.g. banner, flag), require separate application and approval by the Planning Division. No signs are permitted in the public right of way. (MC 9.12)
5. All site plans, grading plans, landscape and irrigation plans, fence/wall plans, lighting plans and street improvement plans shall be coordinated for consistency with this approval.
6. A change or modification to the land use or the approved site plans may require a separate approval. Prior to any change or modification, the property owner shall contact the City of Moreno Valley Community Development Department to determine if a separate approval is required.

Prior to Building Permit

7. Prior to issuance of any grading permit, all Conditions of Approval and Mitigation Measures shall be printed on the building plans.
8. Prior to the issuance of building permits, the developer shall provide documentation that contact was made to the U.S. Postal Service to determine the appropriate type and location of mailboxes.
9. Prior to issuance of any building permits, final landscaping and irrigation plans shall be submitted for review and approved by the Planning Division. After the third plan check review for landscape plans, an additional plan check fee shall apply. The plans shall be prepared in accordance with the City's Landscape Requirements and shall include:
 - a. A three (3) foot high decorative wall, solid hedge or berm shall be placed in any setback areas between a public right of way and a parking lot for screening.

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Plot Plan (PEN19-0057)

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- b. Finger and end planters with required step outs and curbing shall be provided every 12 parking stalls as well as at the terminus of each aisle.
 - c. Diamond planters shall be provided every 3 parking stalls.
 - d. Drought tolerant landscape shall be used. Sod shall be limited to gathering areas. (or No sod shall be installed) E. Street trees shall be provided every 40 feet on center in the right of way.
 - f. On-site trees shall be planted at an equivalent of one (1) tree per thirty (30) linear feet of the perimeter of a parking lot and per thirty linear feet of a building dimension for the portions of the building visible from a parking lot or right of way. Trees may be massed for pleasing aesthetic effects.
 - g. Enhanced landscaping shall be provided at all driveway entries and street corner locations The review of all utility boxes, transformers etc. shall be coordinated to provide adequate screening from public view.
 - h. Landscaping on three sides of any trash enclosure.
 - i. All site perimeter and parking lot landscape and irrigation shall be installed prior to the release of certificate of any occupancy permits for the site or pad in question (master plot plan).
10. Prior to issuance of building permits, the Planning Division shall review and approve the location and method of enclosure or screening of transformer cabinets, commercial gas meters and back flow preventers as shown on the final working drawings. Location and screening shall comply with the following criteria : transformer cabinets and commercial gas meters shall not be located within required setbacks and shall be screened from public view either by architectural treatment or landscaping; multiple electrical meters shall be fully enclosed and incorporated into the overall architectural design of the building (s); back-flow preventers shall be screened by landscaping. (GP Objective 43.30)
 11. Prior to issuance of a building permit, the developer/property owner or developer's successor-in-interest shall pay all applicable impact fees due at permit issuance, including but not limited to Multi-species Habitat Conservation Plan (MSHCP) mitigation fees. (Ord)
 12. Prior to building final, the developer/owner or developer's/owner' s successor-in-interest shall pay all applicable impact fees, including but not limited to Transportation Uniform Mitigation fees (TUMF), and the City's adopted Development Impact Fees. (Ord)
 13. Prior to issuance of building permits, for projects that will be phased, a phasing plan shall be submitted to and approved by the Planning Division if occupancy is proposed to be phased.
 14. Prior to or at building plan check submittal, two copies of a detailed, on -site, computer generated, point-by-point comparison lighting plan, including exterior building, parking lot, and landscaping lighting, shall be submitted to the Building Division for review and approval by the Planning Division prior to the issuance of a building permit. The lighting plan shall be generated on the plot plan and shall be integrated with the final landscape plan. The plan shall indicate the manufacturer's specifications for light fixtures used, shall include style, illumination, location, height and method of shielding per the City's Municipal Code requirements. (MC 9.08.100, 9.16.280)
 15. Prior to issuance of building permits, screening details shall be addressed on the building plans for roof top equipment submitted for Planning Division review and approval through the building plan check process. All equipment shall be completely screened so as not to be visible from public view, and the screening shall be an integral part of the building.
 16. Prior to issuance of any grading permit, all Conditions of Approval and Mitigation Measures

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Plot Plan (PEN19-0057)

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shall be printed on the grading plans.

17. Prior to the issuance of grading permits, decorative (e.g. colored/scored concrete or as approved by the Planning Official) pedestrian pathways across circulation aisles/paths shall be provided throughout the development to connect commercial buildings with parking and/or the public right-of-way. The pathways shall be shown on the precise grading plan. (GP Objective 46.8, DG)
18. Prior to issuance of any grading permits, mitigation measures contained in the Mitigation Monitoring Program approved with this project shall be implemented as provided therein. A mitigation monitoring fee, as provided by City ordinance, shall be paid by the applicant within 30 days of project approval. No City permit or approval shall be issued until such fee is paid. (CEQA)
19. Prior to issuance of grading permits, the developer shall pay the applicable Stephens' Kangaroo Rat (SKR) Habitat Conservation Plan mitigation fee. (Ord)
20. If potential historic, archaeological, Native American cultural resources or paleontological resources are uncovered during excavation or construction activities at the project site, work in the affected area must cease immediately and a qualified person (meeting the Secretary of the Interior's standards (36CFR61)) shall be consulted by the applicant to evaluate the find, and as appropriate recommend alternative measures to avoid, minimize or mitigate negative effects on the historic, prehistoric, or paleontological resource. Determinations and recommendations by the consultant shall be immediately submitted to the Planning Division for consideration, and implemented as deemed appropriate by the Community Development Director, in consultation with the State Historic Preservation Officer (SHPO) and any and all affected Native American Tribes before any further work commences in the affected area. If human remains are discovered during grading and other construction excavation, no further disturbance shall occur until the County Coroner has made necessary findings as to origin. If the County Coroner determines that the remains are potentially Native American, the California Native American Heritage Commission shall be notified within 5-days of the published finding to be given a reasonable opportunity to identify the "most likely descendant." The "most likely descendant" shall then make recommendations, and engage in consultations concerning the treatment of the remains (California Public Resources Code 5097.98). (GP Objective 23.3, CEQA).
21. Within thirty (30) days prior to any grading or other land disturbance, a pre-construction survey for Burrowing Owls shall be conducted pursuant to the established guidelines of Multiple Species Habitat Conservation Plan. The pre-construction survey shall be submitted to the Planning Division prior to any disturbance of the site and/or grading permit issuance.
22. Prior to the issuance of grading permits, the site plan and grading plans shall show decorative hardscape (e.g. colored concrete, stamped concrete, pavers or as approved by the Planning Official) consistent and compatible with the design, color and materials of the proposed development for all driveway ingress /egress locations of the project.
23. Prior to the issuance of grading permits, a temporary project identification sign shall be erected on the site in a secure and visible manner. The sign shall be conspicuously posted at the site and remain in place until occupancy of the project. The sign shall include the following:
 - a. The name (if applicable) and address of the development.
 - b. The developer's name, address, and a 24-hour emergency telephone number.

CONDITIONS OF APPROVAL

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Prior to Building Final or Occupancy

24. Prior to building final, all required landscaping and irrigation shall be installed per plan, certified by the Landscape Architect and inspected by the Planning Division. (MC 9.03.040, MC 9.17).
25. Prior to building final, Planning approved/stamped landscape plans shall be provided to the Community Development Department – Planning Division on a CD disk.

Building Division

26. The proposed non-residential project shall comply with the latest Federal Law, Americans with Disabilities Act, and State Law, California Code of Regulations, Title 24, Chapter 11B for accessibility standards for the disabled including access to the site, exits, bathrooms, work spaces, etc.
27. Prior to submittal, all new development, including residential second units, are required to obtain a valid property address prior to permit application. Addresses can be obtained by contacting the Building Safety Division at 951.413.3350.
28. Contact the Building Safety Division for permit application submittal requirements.
29. Any construction within the city shall only be as follows: Monday through Friday seven a.m. to seven p.m. (except for holidays which occur on weekdays), eight a.m. to four p.m.; weekends and holidays (as observed by the city and described in the Moreno Valley Municipal Code Chapter 2.55), unless written approval is first obtained from the Building Official or City Engineer.
30. Building plans submitted shall be signed and sealed by a California licensed design professional as required by the State Business and Professions Code.
31. The proposed development shall be subject to the payment of required development fees as required by the City's current Fee Ordinance at the time a building application is submitted or prior to the issuance of permits as determined by the City.
32. The proposed project will be subject to approval by the Eastern Municipal Water District and all applicable fees and charges shall be paid prior to permit issuance. Contact the water district at 951.928.3777 for specific details.
33. All new structures shall be designed in conformance to the latest design standards adopted by the State of California in the California Building Code, (CBC) Part 2, Title 24, California Code of Regulations including requirements for allowable area, occupancy separations, fire suppression systems, accessibility, etc. The current code edition is the 2019 CBC.
34. The proposed project's occupancy shall be classified by the Building Official and must comply with exiting, occupancy separation(s) and minimum plumbing fixture requirements. Minimum plumbing fixtures shall be provided per the 2019 California Plumbing Code, Table 422.1. The occupant load and occupancy classification shall be determined in accordance with the California Building Code.
35. Riverside County Approvals required for Onsite Water Treatment System.
36. Prior to permit issuance, every applicant shall submit a properly completed Waste Management Plan (WMP), as a portion of the building or demolition permit process. (MC

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Plot Plan (PEN19-0057)

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8.80.030)

FIRE DEPARTMENT**Fire Prevention Bureau**

37. Prior to issuance of Certificate of Occupancy or Building Final, all commercial buildings shall display street numbers in a prominent location on the street side and rear access locations. The numerals shall be a minimum of twelve inches in height. (CFC 505.1, MVMC 8.36.060[I])
38. Prior to issuance of Certificate of Occupancy or Building Final, the applicant/developer shall install a fire sprinkler system based on square footage and type of construction, occupancy or use. Fire sprinkler plans shall be submitted to the Fire Prevention Bureau for approval prior to installation. (CFC Chapter 9, MVMC 8.36.100[D])
39. Prior to issuance of a Certificate of Occupancy or Building Final, a "Knox Box Rapid Entry System" shall be provided. The Knox-Box shall be installed in an accessible location approved by the Fire Code Official. All exterior security emergency access gates shall be electronically operated and be provided with Knox key switches for access by emergency personnel. (CFC 506.1)
40. The minimum number of fire hydrants required, as well as the location and spacing of fire hydrants, shall comply with the C.F.C., MVMC, and NFPA 24. Fire hydrants shall be located no closer than 40 feet to a building. A fire hydrant shall be located within 50 feet of the fire department connection for buildings protected with a fire sprinkler system. The size and number of outlets required for the approved fire hydrants are (6" x 4" x 2 ½" x 2 ½") (CFC 507.5.1, 507.5.7, Appendix C, NFPA 24-7.2.3, MVMC 912.2.1)
41. The Fire Prevention Bureau is required to set a minimum fire flow for the remodel or construction of all commercial buildings per CFC Appendix B and Table B 105.1. The applicant/developer shall provide documentation to show there exists a water system capable of delivering said waterflow for 2 hour(s) duration at 20-PSI residual operating pressure. The required fire flow may be adjusted during the approval process to reflect changes in design, construction type, or automatic fire protection measures as approved by the Fire Prevention Bureau. Specific requirements for the project will be determined at time of submittal. (CFC 507.3, Appendix B)
42. Prior to issuance of Certificate of Occupancy or Building Final, the applicant/developer shall be responsible for obtaining underground and /or above ground tank permits for the storage of combustible liquids, flammable liquids, or any other hazardous materials from both the County of Riverside Community Health Agency Department of Environmental Health and the Fire Prevention Bureau. (CFC 105)
43. Prior to issuance of Building Permits, the applicant/developer shall furnish one copy of the water system plans to the Fire Prevention Bureau for review. Plans shall: a. Be signed by a registered civil engineer or a certified fire protection engineer; b. Contain a Fire Prevention Bureau approval signature block; and c. Conform to hydrant type, location, spacing of new and existing hydrants and minimum fire flow required as determined by the Fire Prevention Bureau. The required water system, including fire hydrants, shall be installed, made serviceable, and be accepted by the Moreno Valley Fire Department prior to beginning construction. They shall be maintained accessible.

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PUBLIC WORKS DEPARTMENT**Land Development**

44. Aggregate slurry, as defined in Section 203-5 of Standard Specifications for Public Works Construction, shall be required prior to 90% security reduction or the end of the one-year warranty period of the public streets as approved by the City Engineer. If slurry is required, a slurry mix design shall be submitted for review and approved by the City Engineer. The latex additive shall be Ultra Pave 70 (for anionic) or Ultra Pave 65 K (for cationic) or an approved equal per the geotechnical report. The latex shall be added at the emulsion plant after weighing the asphalt and before the addition of mixing water. The latex shall be added at a rate of two to two-and-one-half (2 to 2½) parts to one-hundred (100) parts of emulsion by volume. Any existing striping shall be removed prior to slurry application and replaced per City standards.
45. The developer shall comply with all applicable City ordinances and resolutions including the City's Municipal Code (MC) and if subdividing land, the Government Code (GC) of the State of California, specifically Sections 66410 through 66499.58, said sections also referred to as the Subdivision Map Act (SMA). [MC 9.14.010]
46. The final approved conditions of approval (COAs) issued and any applicable Mitigation Measures by the Planning Division shall be photographically or electronically placed on mylar sheets and included in the Grading and Street Improvement plans.
47. The developer shall monitor, supervise and control all construction related activities, so as to prevent these activities from causing a public nuisance, including but not limited to, insuring strict adherence to the following:
- a. Removal of dirt, debris, or other construction material deposited on any public street no later than the end of each working day.
 - b. Observance of working hours as stipulated on permits issued by the Land Development Division.
 - c. The construction site shall accommodate the parking of all motor vehicles used by persons working at or providing deliveries to the site.
 - d. All dust control measures per South Coast Air Quality Management District (SCAQMD) requirements during the grading operations.

Violation of any condition, restriction or prohibition set forth in these conditions shall subject the owner, applicant, developer or contractor (s) to remedy as noted in City Municipal Code 8.14.090. In addition, the City Engineer or Building Official may suspend all construction related activities for violation of any condition, restriction or prohibition set forth in these conditions until such time as it has been determined that all operations and activities are in conformance with these conditions.

48. If improvements associated with this project are not initiated within two (2) years of the date of approval of the Public Improvement Agreement (PIA), the City Engineer may require that the engineer's estimate for improvements associated with the project be modified to reflect current City construction costs in effect at the time of request for an extension of time for the PIA or issuance of a permit. [MC 9.14.210(B)(C)]
49. The developer shall protect downstream properties from damage caused by alteration of drainage patterns (i.e. concentration or diversion of flow, etc). Protection shall be provided by constructing adequate drainage facilities, including, but not limited to, modifying existing facilities or by securing a drainage easement. [MC 9.14.110]

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50. Public drainage easements, when required, shall be a minimum of 25 feet wide and shall be shown on the map and plan, and noted as follows: "Drainage Easement – no structures, obstructions, or encroachments by land fills are allowed." In addition, the grade within the easement area shall not exceed a 3:1 (H:V) slope, unless approved by the City Engineer.
51. The maintenance responsibility of the proposed storm drain line shall be clearly identified. Storm drain lines within private property will be privately maintained and those within public streets will be publicly maintained.
52. This project shall submit civil engineering design plans, reports and /or documents (prepared by a registered/licensed civil engineer) for review and approval by the City Engineer per the current submittal requirements, prior to the indicated threshold or as required by the City Engineer. The submittal consists of, but is not limited to, the following:
 - a. Lot line adjustment combining all parcels into a single parcel (recording prior to building permit issuance);
 - b. Rough grading w/ erosion control plan (prior to grading permit issuance);
 - c. Precise grading w/ erosion control plan (prior to building permit issuance);
 - d. Street/Storm drain w/ signing & striping plan (prior to encroachment permit issuance);
 - e. Final drainage study (prior to grading plan approval);
 - f. Final WQMP (prior to grading plan approval);
 - g. Offer of Dedication for corner cut-off (prior to improvement plan approval);
 - h. As-Built revision for all plans (prior to Occupancy release)
53. Water quality best management practices (BMPs) designed to meet Water Quality Management Plan (WQMP) requirements for single-family residential development shall not be used as a construction BMP. Water quality BMPs shall be maintained for the entire duration of the project construction and be used to treat runoff from those developed portions of the project. Water quality BMPs shall be protected from upstream construction related runoff by having proper best management practices in place and maintained. Water quality BMPs shall be graded per the approved design plans and once landscaping and irrigation has been installed, it and its maintenance shall be turned over to an established Homeowner's Association (HOA). The Homeowner's Association shall enter into an agreement with the City for basin maintenance.

Prior to Grading Plan Approval

54. Resolution of all drainage issues shall be as approved by the City Engineer.
55. A final detailed drainage study (prepared by a registered/licensed civil engineer) shall be submitted for review and approved by the City Engineer. The study shall include, but not be limited to: existing and proposed hydrologic conditions as well as hydraulic calculations for all drainage control devices and storm drain lines. The study shall analyze 1, 3, 6 and 24-hour duration events for the 2, 5, 10 and 100-year storm events [MC 9.14.110(A.1)]. A digital (pdf) copy of the approved drainage study shall be submitted to the Land Development Division.
56. Emergency overflow areas shall be shown at all applicable drainage improvement locations in the event that the drainage improvement fails or exceeds full capacity. This may include, but not be limited to, secondary catch basins or emergency spillway.
57. A final project-specific Water Quality Management Plan (WQMP) shall be submitted for review and approved by the City Engineer, which:
 - a. Addresses Site Design Best Management Practices (BMPs) such as minimizing impervious areas, maximizing permeability, minimizes directly connected impervious

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Plot Plan (PEN19-0057)

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- areas to the City's street and storm drain systems, and conserves natural areas;
- b. Incorporates Source Control BMPs and provides a detailed description of their implementation;
- c. Describes the long-term operation and maintenance requirements for BMPs requiring maintenance; and
- d. Describes the mechanism for funding the long-term operation and maintenance of the BMPs.

A copy of the final WQMP template can be obtained on the City's Website or by contacting the Land Development Division. A digital (pdf) copy of the approved final project-specific Water Quality Management Plan (WQMP) shall be submitted to the Land Development Division.

58. The final project-specific Water Quality Management Plan (WQMP) shall be consistent with the approved P-WQMP, as well as in full conformance with the document: "Water Quality Management Plan - A Guidance Document for the Santa Ana Region of Riverside County" dated October 22, 2012. The F-WQMP shall be submitted and approved prior to application for and issuance of grading permits. At a minimum, the F-WQMP shall include the following: Site Design BMPs; Source Control BMPs, Treatment Control BMPs, Operation and Maintenance requirements for BMPs and sources of funding for BMP implementation.
- a. The Applicant has proposed to incorporate the use of modular wetland system. Final design and sizing details of all BMPs must be provided in the first submittal of the F-WQMP. The Applicant acknowledges that more area than currently shown on the plans may be required to treat site runoff as required by the WQMP guidance document.
 - b. The Applicant shall substantiate the applicable Hydrologic Condition of Concerns (HCOC) in Section F of the F-WQMP. The HCOC designates that the project will be exempt from mitigation requirements based on Exemption 3.
 - c. All proposed LID BMP's shall be designed in accordance with the RCFC&WCD's Design Handbook for Low Impact Development Best Management Practices, dated September 2011.
 - d. The proposed LID BMP's as identified in the project-specific P-WQMP shall be incorporated into the Final WQMP.
 - e. The NPDES notes per City Standard Drawing No. MVFE-350-0 shall be included in the grading plans.
 - f. Post-construction treatment control BMPs, once placed into operation for post-construction water quality control, shall not be used to treat runoff from construction sites or unstabilized areas of the site.
 - g. Prior to precise grading plan approval, the grading plan shall show any proposed trash enclosure to include a cover (roof) and sufficient size for dual bin (1 for trash and 1 for recyclables). The architecture shall be approved by the Planning Division and any structural approvals shall be made by the Building and Safety Division.
59. The developer shall ensure compliance with the City Grading ordinance, these Conditions of Approval and the following criteria:
- a. The project street and lot grading shall be designed in a manner that perpetuates the existing natural drainage patterns with respect to tributary drainage area and outlet points. Unless otherwise approved by the City Engineer, lot lines shall be located at the top of slopes.
 - b. Any grading that creates cut or fill slopes adjacent to the street shall provide erosion control, sight distance control, and slope easements as approved by the City Engineer.
 - c. All improvement plans are substantially complete and appropriate clearance letters

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Plot Plan (PEN19-0057)

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- are provided to the City.
- d. A soils/geotechnical report (addressing the soil's stability and geological conditions of the site) shall be submitted to the Land Development Division for review. A digital (pdf) copy of the soils/geotechnical report shall be submitted to the Land Development Division.
60. Grading plans (prepared by a registered/licensed civil engineer) shall be submitted for review and approved by the City Engineer per the current submittal requirements.
61. The developer shall select Low Impact Development (LID) Best Management Practices (BMPs) designed per the latest version of the Water Quality Management Plan (WQMP) - a guidance document for the Santa Ana region of Riverside County.
62. The developer shall pay all remaining plan check fees.
63. A Storm Water Pollution Prevention Plan (SWPPP) shall be prepared in conformance with the State's current Construction Activities Storm Water General Permit. A copy of the current SWPPP shall be kept at the project site and be available for review upon request.
64. For projects that will result in discharges of storm water associated with construction with a soil disturbance of one or more acres of land, the developer shall submit a Notice of Intent (NOI) and obtain a Waste Discharger's Identification number (WDID#) from the State Water Quality Control Board (SWQCB) which shall be noted on the grading plans.

Prior to Grading Permit

65. A receipt showing payment of the Area Drainage Plan (ADP) fee to Riverside County Flood Control and Water Conservation District shall be submitted. [MC 9.14.100(O)]
66. A digital (pdf) copy of all approved grading plans shall be submitted to the Land Development Division.
67. Security, in the form of a cash deposit (preferable), bond or letter of credit shall be submitted as a guarantee of the implementation and maintenance of erosion control measures. At least twenty-five (25) percent of the required security shall be in the form of a cash deposit with the City. [MC 8.21.160(H)]
68. Security, in the form of a cash deposit (preferable), bond or letter of credit shall be submitted as a guarantee of the completion of the grading operations for the project. [MC 8.21.070]
69. The developer shall pay all applicable inspection fees.

Prior to Improvement Plan Approval

70. The developer is required to bring any existing access ramps adjacent to and fronting the project to current ADA (Americans with Disabilities Act) requirements. However, when work is required in an intersection that involves or impacts existing access ramps, all access ramps in that intersection shall be retrofitted to comply with current ADA requirements, unless otherwise approved by the City Engineer.
71. The developer shall submit clearances from all applicable agencies, and pay all applicable plan check fees.
72. The street improvement plans shall comply with current City policies, plans and applicable

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- City standards (i.e. MVSI-160 series, etc.) throughout this project.
73. The design plan and profile shall be based upon a centerline, extending beyond the project boundaries a minimum distance of 300 feet at a grade and alignment approved by the City Engineer.
 74. Drainage facilities (i.e. catch basins, etc.) with sump conditions shall be designed to convey the tributary 100-year storm flows. Secondary emergency escape shall also be provided.
 75. The hydrology study shall be designed to accept and properly convey all off -site drainage flowing onto or through the site. In the event that the City Engineer permits the use of streets for drainage purposes, the provisions of current City standards shall apply. Should the quantities exceed the street capacity or the use of streets be prohibited for drainage purposes, as in the case where one travel lane in each direction shall not be used for drainage conveyance for emergency vehicle access on streets classified as minor arterials and greater, the developer shall provide adequate facilities as approved by the City Engineer. [MC 9.14.110 A.2]
 76. All public improvement plans (prepared by a licensed/registered civil engineer) shall be submitted for review and approved by the City Engineer per the current submittal requirements. The plans shall show the following:
 - a. Kimberly Avenue, a Local street, shall be constructed to half width plus 12 feet per City Standard Plan No. MVSI-107A-0. This includes, but is not limited, to the following: curb, gutter, asphalt base, asphalt concrete, street light, catch basin, and storm drain.
 - b. At a minimum, a two (2) inch grind and overlay shall be required across the entire street (i.e. curb-to-curb, edge of pavement to edge of pavement) and along the length of the project, on Alessandro Boulevard, Redlands Boulevard, and Kimberly Avenue. The overlay shall consist of PG 64-16 ARHM GG-C. Additional pavement rehabilitation may be required based on pavement core sample results.
 - c. The proposed storm drain within Kimberly Avenue shall be a minimum 24" diameter RCP which extends from the project easterly boundary and connects to the Moreno MDP Line F-2 within Redlands Boulevard.
 77. Any missing or deficient existing improvements along the project frontage within Alessandro Boulevard, Redlands Boulevard and Kimberly Avenue shall be constructed or secured for construction. The City Engineer may require the ultimate structural section for pavement or provide core test results confirming that existing pavement section is per current City Standards; additional signing & striping to accommodate increased traffic imposed by the development, etc.
 78. For non-subdivision projects, all street dedications shall be free of encumbrances, irrevocably offered to the public and shall continue in force until the City accepts or abandons such offers, unless otherwise approved by the City Engineer. This project will be required to dedicate a corner cut-back at the southeast corner of Redlands Boulevard and Alessandro Boulevard per City Standard Plan No. MVSI-165-0.
 79. The plans shall indicate any restrictions on trench repair pavement cuts to reflect the City's moratorium on disturbing newly-constructed pavement less than three (3) years old and recently slurry sealed streets less than one (1) year old. Pavement cuts may be allowed for emergency repairs or as specifically approved in writing by the City Engineer. Special requirements shall be imposed for repaving, limits to be determined by the City Engineer.

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80. All dry and wet utilities shall be shown on the plans and any crossings shall be potholed to determine actual location and elevation. Any conflicts shall be identified and addressed on the plans. The pothole survey data shall be submitted to Land Development with the public improvement plans for reference purposes only. The developer is responsible to coordinate with all affected utility companies and bear all costs of any utility relocation.

Prior to Encroachment Permit

81. A digital (pdf) copy of all approved improvement plans shall be submitted to the Land Development Division.
82. All applicable inspection fees shall be paid.
83. For non-subdivision projects, execution of a Public Improvement Agreement (PIA) and/or security (in the form of a cash deposit or other approved means) may be required as determined by the City Engineer. [MC 9.14.220]
84. The plans shall indicate any restrictions on trench repair pavement cuts to reflect the City's moratorium on disturbing newly-constructed pavement less than three (3) years old and recently slurry sealed streets less than one (1) year old. Pavement cuts may be allowed for emergency repairs or as specifically approved in writing by the City Engineer. Special requirements shall be imposed for repaving, limits to be determined by the City Engineer.
85. Any work performed within public right-of-way requires an encroachment permit.

Prior to Building Permit

86. An engineered-fill certification, rough grade certification and compaction report shall be submitted for review and approved by the City Engineer. A digital (pdf) copy of the approved compaction report shall be submitted to the Land Development Division. All pads shall meet pad elevations per approved grading plans as noted by the setting of "blue-top" markers installed by a registered land surveyor or licensed civil engineer.
87. For non-subdivision projects, the developer shall guarantee the completion of all related public improvements required for this project by executing a Public Improvement Agreement (PIA) with the City and posting the required security. [MC 9.14.220]
- a. Kimberly Avenue, a Local street, shall be constructed to half width plus 12 feet per City Standard Plan No. MVSI-107A-0. This includes, but is not limited, to the following: curb, gutter, asphalt base, asphalt concrete, street light, catch basin, and storm drain.
 - b. At a minimum, a two (2) inch grind and overlay shall be required across the entire street (i.e. curb-to-curb, edge of pavement to edge of pavement) and along the length of the project, on Alessandro Boulevard, Redlands Boulevard, and Kimberly Avenue. The overlay shall consist of PG 64-16 ARHM GG-C. Additional pavement rehabilitation may be required based on pavement core sample results.
 - c. The proposed storm drain within Kimberly Avenue shall be a minimum 24" diameter RCP which extends from the project easterly boundary and connects to the Moreno MDP Line F-2 within Redlands Boulevard.
88. A lot line adjustment (LLA) shall be submitted for review, approval, and recordation. The LLA shall include Assessor Parcel Numbers 478-430-029, 478-030-030 and 478-030-031. The purpose of the LLA is to combine the said parcels into one parcel in order to accommodate the proposed building with on-site improvements and meet minimum lot size requirements.

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- The LLA shall be prepared in such a way that the building and on-site improvements are not constructed across property lines and to meet all minimum building setbacks.
89. For Commercial/Industrial projects, the owner may have to secure coverage under the State's General Industrial Activities Storm Water Permit as issued by the State Water Resources Control Board.
 90. For non-subdivision projects, all street dedications shall be free of encumbrances, irrevocably offered to the public and shall continue in force until the City accepts or abandons such offers, unless otherwise approved by the City Engineer.
 91. A walk through with a Land Development Inspector shall be scheduled to inspect existing improvements within public right of way along project frontage. Any missing, damaged or substandard improvements including ADA access ramps that do not meet current City standards shall be required to be installed, replaced and /or repaired. The applicant shall post security to cover the cost of the repairs and complete the repairs within the time allowed in the public improvement agreement used to secure the improvements.
 92. Certification to the line, grade, flow test and system invert elevations for the water quality control BMPs shall be submitted for review and approved by the City Engineer (excluding models homes).

Prior to Occupancy

93. All outstanding fees shall be paid.
94. All required as-built plans (prepared by a registered/licensed civil engineer) shall be submitted for review and approved by the City Engineer per the current submittal requirements.
95. The final/precise grade certification shall be submitted for review and approved by the City Engineer.
96. For commercial, industrial and multi-family projects, in compliance with Proposition 218, the developer shall agree to approve the City of Moreno Valley NPDES Regulatory Rate Schedule that is in place at the time of certificate of occupancy issuance. Under the current permit for storm water activities required as part of the National Pollutant Discharge Elimination System (NPDES) as mandated by the Federal Clean Water Act, this project is subject to the following requirements:
 - a. Select one of the following options to meet the financial responsibility to provide storm water utilities services for the required continuous operation, maintenance, monitoring system evaluations and enhancements, remediation and/or replacement, all in accordance with Resolution No. 2002-46.
 - i. Participate in the mail ballot proceeding in compliance with Proposition 218, for the Common Interest, Commercial, Industrial and Quasi-Public Use NPDES Regulatory Rate Schedule and pay all associated costs with the ballot process; or
 - ii. Establish an endowment to cover future City costs as specified in the Common Interest, Commercial, Industrial and Quasi-Public Use NPDES Regulatory Rate Schedule.
 - b. Notify the Special Districts Division of the intent to request building permits 90 days prior to their issuance and the financial option selected. The financial option selected shall be in place prior to the issuance of certificate of occupancy. [California

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Government Code & Municipal Code]

97. The developer shall complete all public improvements in conformance with current City standards, except as noted in the Special Conditions, including but not limited to the following:
- a. Street improvements including, but not limited to: pavement, base, curb and/or gutter, cross gutters, spandrel, sidewalks, drive approaches, pedestrian ramps, street lights (<MVU: SL-2 / SCE: LS-2>), signing, striping, under sidewalk drains, landscaping and irrigation, medians, pavement tapers/transitions and traffic control devices as appropriate.
 - b. Storm drain facilities including, but not limited to: storm drain pipe, storm drain laterals, open channels, catch basins and local depressions.
 - c. City-owned utilities.
 - d. Sewer and water systems including, but not limited to: sanitary sewer, potable water and recycled water.
 - e. Under grounding of all existing and proposed utilities adjacent to and on -site. [MC 9.14.130]
 - f. Relocation of overhead electrical utility lines including, but not limited to: electrical, cable and telephone.
98. For commercial, industrial and multi-family projects, a "Stormwater Treatment Device and Control Measure Access and Maintenance Covenant ", "Maintenance Agreement for Water Quality (and Landscape) Improvements located in the public right-of-way" and a "Declaration of Restrictive Covenants (encroachment on City easement)" shall be recorded to provide public notice of the maintenance requirements to be implemented per the approved final project-specific WQMP. A boilerplate copy of the covenants and agreements can be obtained by contacting the Land Development Division.
99. The applicant shall ensure the following, pursuant to Section XII. I. of the 2010 NPDES Permit:
- a. Field verification that structural Site Design, Source Control and Treatment Control BMPs are designed, constructed and functional in accordance with the approved Final Water Quality Management Plan (WQMP).
 - b. Certification of best management practices (BMPs) from a state licensed civil engineer. An original WQMP BMP Certification shall be submitted for review and approved by the City Engineer.
100. The Developer shall comply with the following water quality related items:
- a. Notify the Land Development Division prior to construction and installation of all structural BMPs so that an inspection can be performed.
 - b. Demonstrate that all structural BMPs described in the approved final project-specific WQMP have been constructed and installed in conformance with the approved plans and specifications;
 - c. Demonstrate that Developer is prepared to implement all non -structural BMPs described in the approved final project-specific WQMP; and
 - d. Demonstrate that an adequate number of copies of the approved final project-specific WQMP are available for future owners/occupants.
 - e. Clean and repair the water quality BMP's, including re-grading to approved civil drawing if necessary.
 - f. Obtain approval and complete installation of the irrigation and landscaping.

Special Districts Division

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101. **NEW STREET LIGHT INSTALLATION FEES.** Prior to the issuance of the first building permit for this project, the Developer shall pay New Street Light Installation Fees for all applicable Residential and Arterial Street Lights required for this development. Payment shall be made to the City of Moreno Valley and collected by the Land Development Division. Fees are based upon the Advanced Energy fee rate in place at the time of payment, as set forth in the current Listing of City Fees, Charges, and Rates adopted by City Council. The Developer shall provide a copy of the receipt to the Special Districts Division (specialdistricts@moval.org). Any change in the project which may increase the number of street lights to be installed will require payment of additional Advanced Energy fees at the then current fee. Questions may be directed to the Special Districts Division at 951.413.3480 or specialdistricts@moval.org.
102. This project is conditioned for a proposed district to provide a funding source for the operation and maintenance of public improvements and /or services associated with new development in that territory. The Developer shall satisfy this condition with one of the options outlined below.
- a. Participate in a special election for maintenance/services and pay all associated costs of the election process and formation, if any. Financing may be structured through a Community Facilities District, Landscape and Lighting Maintenance District, or other financing structure as determined by the City; or
 - b. Establish an endowment fund to cover the future maintenance and /or service costs. The Developer must notify the Special Districts Division at 951.413.3480 or at specialdistricts@moval.org when submitting the application for building permit issuance. If the first building permit is pulled prior to formation of the district, this condition will not apply. If the district has been or is in the process of being formed the Developer must inform the Special Districts Division of its selected financing option (a. or b. above). The option for participating in a special election requires 90 days to complete the special election process. This allows adequate time to be in compliance with the provisions of Article 13C of the California Constitution. The financial option selected shall be in place prior to the issuance of the first certificate of occupancy for the project.
103. This project has been identified to be included in the formation of a Community Facilities District (Mello-Roos) for Public Safety services, including but not limited to Police, Fire Protection, Paramedic Services, Park Rangers, and Animal Control services. The property owner(s) shall not protest the formation; however, they retain the right to object to the rate and method of maximum special tax. In compliance with Proposition 218, the property owner shall agree to approve the mail ballot proceeding (special election) for either formation of the CFD or annexation into an existing district. The Developer must notify the Special Districts Division at 951.413.3480 or at specialdistricts@moval.org when submitting the application for building permit issuance to determine the requirement for participation. If the first building permit is pulled prior to formation of the district, this condition will not apply. If the condition applies, the special election will require a minimum of 90 days prior to issuance of the first building permit. This allows adequate time to be in compliance with the provisions of Article 13C of the California Constitution. (California Government Code Section 53313 et. seq.)
104. The ongoing maintenance of any landscaping required to be installed behind the curb shall be the responsibility of the property owner.
105. Street Light Authorization forms for all street lights that are conditioned to be installed as part of this project must be submitted to the Special Districts Division for approval, prior to street light installation. The Street Light Authorization form can be obtained from the utility company

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providing electric service to the project, either Moreno Valley Utility or Southern California Edison. For questions, contact the Special Districts Division at 951.413.3480 or specialdistricts@moval.org.

106. The parcel(s) associated with this project have been incorporated into the Moreno Valley Community Services District Zone A (Parks & Community Services) and Zone C (Arterial Street Lighting). All assessable parcels therein shall be subject to annual parcel taxes for Zone A and Zone C for operations and capital improvements.
107. This project is conditioned to provide a funding source for the following special financing program(s):
- a. Street Lighting Services for capital improvements, energy charges, and maintenance.
 - b. If a median is required, Landscape Maintenance Services for parkway, open space, and/or median landscaping on Redlands Blvd.
- The Developer's responsibility is to provide a funding source for the capital improvements and the continued maintenance. The Developer shall satisfy this condition with one of the options below.
- i. Participate in a special election (mail ballot proceeding) and pay all associated costs of the special election and formation, if any. Financing may be structured through a Community Services District zone, Community Facilities District, Landscape and Lighting Maintenance District, or other financing structure as determined by the City; or
 - ii. Establish a Property Owner's Association (POA) or Home Owner's Association (HOA) which will be responsible for any and all operation and maintenance costs
- The Developer must notify the Special Districts Division at 951.413.3480 or at specialdistricts@moval.org of its selected financial option when submitting the application for building permit issuance. The option for participating in a special election requires approximately 90 days to complete the special election process. This allows adequate time to be in compliance with the provisions of Article 13C of the California Constitution. The financial option selected shall be in place prior to the issuance of the first certificate of occupancy for the project.
108. If a median is required, for those areas to be maintained by the City and prior to the issuance of the first Building Permit, Planning Division (Community Development Department), Special Districts Division (the Public Works Department) and Transportation Division (the Public Works Department) shall review and approve the final median, parkway, slope, and/or open space landscape/irrigation plans as designated on the tentative map or in these Conditions of Approval prior to the issuance of the first Building Permit.
109. If a median is required, parkway, median, slope and/or open space landscape areas maintained as part of the City of Moreno Valley Community Facilities District 2014-01 shall be required to have independent utility systems, including but not limited to water, electric, and telephone services. An independent irrigation controller and pedestal will also be required. Combining utility systems with existing or future landscape areas not associated with the City of Moreno Valley Community Facilities District (CFD) landscaping will not be permitted.
110. If a median is required, inspection fees for the monitoring of landscape installation associated with the City of Moreno Valley maintained parkways /medians are due prior to the required pre-construction meeting. (MC 3.32.040)
111. If a median is required, plans for parkway, median, slope, and /or open space landscape areas designated in the project's Conditions of Approval for incorporation into a City

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- Coordinated landscape maintenance program, shall be prepared and submitted in accordance with the City of Moreno Valley Public Works Department Landscape Design Guidelines. The guidelines are available on the City's website at www.moval.org/sd or from the Special Districts Division (951.413.3480 or specialdistricts@moval.org).
112. If a median is required, parkway, open space, and/or median landscaping specified in the project's Conditions of Approval shall be constructed in compliance with the approved landscape plans and completed prior to the issuance of the first Certificate of Occupancy/Building Final for this project.
 113. If a median is required, landscape and irrigation plans for parkway, median, slope, and/or open space landscape areas designated to be maintained by the City shall be placed on compact disk (CD) in pdf format. The CD shall include "As Built" plans, revisions, and changes. The CD will become the property of the City of Moreno Valley and the Moreno Valley Community Services District.
 114. MAJOR INFRASTRUCTURE FINANCING DISTRICT. This project has been identified to potentially be included in the formation of a special financing district for the construction and maintenance of major infrastructure improvements which may include but are not limited to thoroughfares, bridges, and certain flood control improvements. The property owner(s) shall participate in such district and pay any special tax, assessment, or fee levied upon the project property for such district. At the time of the public hearing to consider formation of or annexation into the district, the qualified elector(s) will not protest the formation or annexation, but will retain the right to object to any eventual tax/assessment/fee that is not equitable should the financial burden of the tax/assessment/fee not be reasonably proportionate to the benefit the affected property obtains from the improvements to be installed and /or maintained. The Developer must notify the Special Districts Division at 951.413.3480 or at specialdistricts@moval.org when submitting an application for the first building permit to determine whether the development will be subjected to this condition. If subject to the condition, the special election requires a minimum 90-day process in compliance with the provisions of Article 13C of the California Constitution.
 115. Commercial (BP) If Land Development, a Division of the Public Works Department, requires this project to supply a funding source necessary to provide for, but not limited to, stormwater utilities services for the continuous operation, remediation and/or replacement, monitoring, systems evaluations and enhancement of on -site facilities and performing annual inspections of the affected areas to ensure compliance with state mandated stormwater regulations, a funding source needs to be established. The Developer must notify the Special Districts Division at 951.413.3480 or at specialdistricts@moval.org of its selected financial option for the National Pollution Discharge Elimination System (NPDES) program when submitting the application for the first building permit issuance (see Land Development's related condition). Participating in a special election the process requires a 90 day period prior to the City's issuance of a building permit. This allows adequate time to be in compliance with the provisions of Article 13D of the California Constitution. (California Health and Safety Code Sections 5473 through 5473.8 (Ord. 708 Section 3.1, 2006) & City of Moreno Valley Municipal Code Title 3, Section 3.50.050.)
 116. PARKS MAINTENANCE FUNDING. Prior to applying for the 1st Building Permit, the qualified elector (e.g. property owner) must initiate the process (i.e. pay the annexation fee or fund an endowment) to provide an ongoing funding source for the continued maintenance, enhancement, and or retrofit of parks, open spaces, linear parks, and/or trails systems, and programs.
This condition must be fully satisfied prior to issuance of the 1st Certificate of Occupancy.

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This condition will be satisfied with the successful annexation /formation (i.e. special election process) into a special financing district and payment of all costs associated with the special election process. Annexation into a special financing district requires an annual payment of the annual special tax, assessment, or fee levied against the property tax bill, or other lawful means, of the parcels of the project for such district. At the time of the public hearing to consider annexation into or formation of the district, the qualified elector(s) will not protest the annexation or formation, but will retain the right to object to any eventual tax/assessment/fee that is not equitable should the financial burden of the tax/assessment/fee not be reasonably proportionate to the benefit the affected property receives from the improvements to be installed and/or maintained or services provided. The special election requires a minimum 90-day process in compliance with the provisions of Article 13C of the California Constitution, Proposition 218, or other applicable legislation, and consistent with the scheduling for City Council meetings.

Alternatively, the condition can be satisfied by the Developer funding an endowment in an amount sufficient to yield an annual revenue stream that meets the annual obligation. The Developer must contact Special Districts Administration at 951.413.3470 or at SDAdmin@moval.org to satisfy this condition.

Transportation Engineering Division

117. Conditions of approval may be modified or added if a phasing plan is submitted for this development.
118. All proposed on-site traffic signing and striping should be accordance with the latest California Manual on Uniform Traffic Control Devices (CAMUTCD).
119. The first parking stall/drive aisle juncture shall be 60 feet from the property line per Municipal Code Section 9.11.080 - A.18 or as approved by the City Engineer.
120. Sight distance at the proposed roadways and driveways shall conform to City of Moreno Valley Standard No. MVS1-164A,B,C-0 at the time of preparation of final grading, landscape, and street improvement plans.
121. Prior to final approval of any landscaping or monument sign plans, the project plans shall demonstrate that sight distance at the project driveways conforms to City Standard Plan No. MVS1-164A, B, C-0.
122. Prior to the final approval of the street improvement plans, a signing and striping plan shall be prepared per City of Moreno Valley Standard Plans - Section 4 for all streets with a cross section 66'/44' and wider.
123. Prior to issuance of a Certificate of Occupancy, all approved street improvements shall be installed to the satisfaction of the City Engineer.
124. Prior to issuance of a Building Final or Certificate of Occupancy, all approved signing and striping shall be installed per current City Standards.
125. Prior to issuance of a construction permit, construction traffic control plans prepared by a qualified, registered Civil or Traffic engineer may be required for plan approval or as required by the City Traffic Engineer.
126. Prior to issuance of a building permit, the project applicant shall pay all applicable DIF and TUMF. Payment of this fee covers the project's fair share payment towards any future

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- signalization of Alessandro Boulevard and Redlands Boulevard.
127. Prior to issuance of building permit, the project applicant shall pay to the City of Moreno Valley 15.15 percent of the estimated cost for the intersection improvements at Alessandro Boulevard and Redlands Boulevard.
 128. Prior to the issuance of a certificate of occupancy for the project, driveway access at the following location will be installed as follows:
 - Alessandro Boulevard: Right-in/ Right-out access
 - Redlands Boulevard: Right-in/Right-out access
 129. All project driveways shall conform to Section 9.11.080, and Table 9.11.080-14 of the City's Development Code – Design Guidelines and City of Moreno Valley Standard Plans No. MVS1-112C-0 for commercial driveway approaches.
 130. Prior to issuance of a building permit, the project applicant shall pay to the City of Moreno Valley 100 percent of the estimated cost for communication conduit along the project's frontage along Alessandro Boulevard.
 131. Prior to issuance of a grading permit, the project applicant shall submit an engineer's estimate for intersection improvements including communication conduit along the project's frontage for the City Engineer's approval.

RESOLUTION NUMBER 2021-17

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF MORENO VALLEY, CALIFORNIA, APPROVING PLOT PLAN PEN19-0058 FOR A 3,850 SQUARE FOOT MULTI-TENANT RETAIL BUILDING LOCATED AT THE SOUTHEAST CORNER OF REDLANDS BOULEVARD AND ALESSANDRO BOULEVARD (APN'S: 478-030-029, -030, AND -031)

WHEREAS, the City of Moreno Valley ("City") is a general law city and a municipal corporation of the State of California; and

WHEREAS, Parmjit Singh, ("Developer") has filed an application for the approval of Plot Plan PEN19-0057 ("Application") for a 3,850 multi-tenant retail building to be constructed on the Farm Market site ("Project") located at the southeast corner of Redlands Boulevard and Alessandro Boulevard, APN's 478-030-029, -030, and -031 ("Site"); and

WHEREAS, Section 9.02.070 (Plot Plan) of the Moreno Valley Municipal Code acknowledges that the purpose of plot plans is to provide a mechanism by which all new construction of industrial, commercial or multiple-family residential can be reviewed when not subject to other discretionary review processes which have review authority over project design; and

WHEREAS, the Application has been evaluated in accordance with Section 9.02.070 (Plot Plan) of the Municipal Code with consideration given to the City's General Plan, Zoning Ordinance, and other applicable laws and regulations; and

WHEREAS, Section 9.02.070 of the Municipal Code imposes conditions of approval upon projects for which a Plot Plan is required, which conditions may be imposed by the Planning Commission to address on-site improvements, off-site improvements, the manner in which the site is used and any other conditions as may be deemed necessary to protect the public health, safety and welfare and ensure that the proposed Project will be developed in accordance with the purpose and intent of Title 9 ("Planning and Zoning") of the Municipal Code; and

WHEREAS, Staff has presented for the Planning Commission's consideration Conditions of Approval to be imposed upon Plot Plan PEN19-0058, which conditions have been deemed necessary to protect the public health, safety and welfare and ensure that the proposed Project will be developed in accordance with the purpose and intent of Title 9 (Planning and Zoning) of the Municipal Code; and

WHEREAS, pursuant to the provisions of Section 9.02.200 (Public Hearing and Notification Procedures) of the Municipal Code and Government Code section 65905, a public hearing was scheduled for May 13, 2021, and notice thereof was duly published and posted, and mailed to all property owners of record within 600 feet of the Site; and

WHEREAS, on May 13, 2021, the public hearing to consider the Application was duly conducted by the Planning Commission at which time all interested persons were provided with an opportunity to testify and to present evidence; and

WHEREAS, consistent with the requirements of Section 9.02.070 (Plot Plan) of the Municipal Code, at the public hearing the Planning Commission considered Conditions of Approval to be imposed upon Plot Plan PEN19-0058, which conditions were prepared by Planning Division staff who deemed said conditions to be necessary to protect the public health, safety and welfare and to ensure the proposed Project will be developed in accordance with the purpose and intent of Title 9 (“Planning and Zoning”) of the Municipal Code; and

WHEREAS, at the public hearing, the Planning Commission considered whether each of the requisite findings specified in Section 9.02.070 of the Municipal Code and set forth herein could be made with respect to the proposed Project as conditioned by Conditions of Approval; and

WHEREAS, on May 13, 2021, in accordance with the provisions of the California Environmental Quality Act (CEQA¹) and CEQA Guidelines,² the Planning Commission approved Resolution 2021-15.

NOW, THEREFORE, THE PLANNING COMMISSION OF THE CITY OF MORENO VALLEY, CALIFORNIA, DOES HEREBY RESOLVE AS FOLLOWS:

Section 1. Recitals and Exhibits

That the foregoing Recitals and attached Exhibits are true and correct and are hereby incorporated by this reference.

Section 2. Notice

That pursuant to Government Code section 66020(d)(1), notice is hereby given that the proposed project is subject to certain fees, dedications, reservations and other exactions as provided herein.

Section 3. Evidence

That the Planning Commission has considered all of the evidence submitted into the administrative record for the proposed Plot Plan, including, but not limited to, the following:

- (a) Moreno Valley General Plan and all other relevant provisions contained therein;
- (b) Title 9 (Planning and Zoning) of the Moreno Valley Municipal Code and all other relevant provisions referenced therein;

¹ Public Resources Code §§ 21000-21177

² 14 California Code of Regulations §§15000-15387

- (c) Application for the approval of Plot Plan PEN19-0058 and all documents, records and references contained therein;
- (d) Conditions of Approval for Plot Plan PEN19-0058, attached hereto as Exhibit A;
- (e) Staff Report prepared for the Planning Commission's consideration and all documents, records and references related thereto, and Staff's presentation at the public hearing;
- (f) Testimony and/or comments from Applicant and its representatives during the public hearing; and
- (g) Testimony and/or comments from all persons that was provided in written format or correspondence, at, or prior to, the public hearing.

Section 4. Findings

That based on the foregoing Recitals and the Evidence contained in the Administrative Record as set forth above, the Planning Commission makes the following findings in approving Plot Plan PEN19-0058

- (a) The proposed Project is consistent with the goals, objectives, policies and programs of the general plan;
- (b) The proposed Project complies with all applicable zoning and other regulations;
- (c) The proposed Project will not be detrimental to the public health, safety or welfare or materially injurious to properties or improvements in the vicinity;
- (d) The location, design and operation of the proposed Project will be compatible with existing and planned land uses in the vicinity.

Section 5. Approval

That based on the foregoing Recitals, Evidence contained in the Administrative Record and Findings set forth above, the Planning Commission hereby approves Plot Plan PEN19-0058 subject to the Conditions of Approval for Plot Plan PEN19-0058 attached hereto as Exhibit A.

Section 6. Repeal of Conflicting Provisions

That all the provisions as heretofore adopted by the Planning Commission that are in conflict with the provisions of this Resolution are hereby repealed.

Section 7. Severability

That the Planning Commission declares that, should any provision, section, paragraph, sentence or word of this Resolution be rendered or declared invalid by any final court action in a court of competent jurisdiction or by reason of any preemptive legislation, the remaining provisions, sections, paragraphs, sentences or words of this Resolution as hereby adopted shall remain in full force and effect.

Section 8. Effective Date

That this Resolution shall take effect immediately upon the date of adoption.

Section 9. Certification

That the Secretary of the Planning Commission shall certify to the passage of this Resolution.

PASSED AND ADOPTED THIS _____ day of _____, 2021.

CITY OF MORENO VALLEY
PLANNING COMMISSION

Patricia Korzec, Chairperson

ATTEST:

Patty Nevins
Planning Official

APPROVED AS TO FORM:

Steven B. Quintanilla
Interim City Attorney

Exhibits:
Exhibit A: Conditions of Approval PEN19-0058

Attachment: Resolution 2021-17 - Plot Plan [Revision 5] (4405 : FARM MARKET EXPANSION)

Exhibit A

CONDITIONS OF APPROVAL

CONDITIONS OF APPROVAL

Plot Plan (PEN19-0058)

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CITY OF MORENO VALLEY
 CONDITIONS OF APPROVAL
 Plot Plan (PEN19-0058)

EFFECTIVE DATE:

EXPIRATION DATE:

COMMUNITY DEVELOPMENT DEPARTMENTPlanning Division

1. Plan PEN19-0058 is approved for development of a 3,580 square foot multi-tenant retail building (2,350 SF restaurant / 1,500 SF retail), within a commercial center to include an existing neighborhood market and a vehicle fueling station with a canopy and eight (8) fuel pumps subject to approval of related applications Master Plot Plan PEN19-0057.
2. This approval shall expire three years after the approval date of this project unless used or extended as provided for by the City of Moreno Valley Municipal Code; otherwise it shall become null and void and of no effect whatsoever. Use means the beginning of substantial construction contemplated by this approval within the three-year period, which is thereafter pursued to completion, or the beginning of substantial utilization contemplated by this approval. (MC 9.02.230)
3. All landscaped areas shall be maintained in a healthy and thriving condition, free from weeds, trash and debris. (MC 9.02.030)
4. Any signs indicated on the submitted plans are not included with this approval. Any signs, whether permanent (e.g. wall, monument) or temporary (e.g. banner, flag), require separate application and approval by the Planning Division. No signs are permitted in the public right of way. (MC 9.12)
5. All site plans, grading plans, landscape and irrigation plans, fence/wall plans, lighting plans and street improvement plans shall be coordinated for consistency with this approval.
6. A change or modification to the land use or the approved site plans may require a separate approval. Prior to any change or modification, the property owner shall contact the City of Moreno Valley Community Development Department to determine if a separate approval is required.

Prior to Building Permit

7. Prior to issuance of any grading permit, all Conditions of Approval and Mitigation Measures shall be printed on the building plans.
8. Prior to the issuance of building permits, the developer shall provide documentation that contact was made to the U.S. Postal Service to determine the appropriate type and location of mailboxes.
9. Prior to issuance of any building permits, final landscaping and irrigation plans shall be submitted for review and approved by the Planning Division. After the third plan check review for landscape plans, an additional plan check fee shall apply. The plans shall be prepared in accordance with the City's Landscape Requirements and shall include:
 - a. A three (3) foot high decorative wall, solid hedge or berm shall be placed in

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- any setback areas between a public right of way and a parking lot for screening.
- b. Finger and end planters with required step outs and curbing shall be provided every 12 parking stalls as well as at the terminus of each aisle.
 - c. Diamond planters shall be provided every 3 parking stalls.
 - d. Drought tolerant landscape shall be used. Sod shall be limited to gathering areas. (or No sod shall be installed)
 - e. Street trees shall be provided every 40 feet on center in the right of way.
 - f. On-site trees shall be planted at an equivalent of one (1) tree per thirty (30) linear feet of the perimeter of a parking lot and per thirty linear feet of a building dimension for the portions of the building visible from a parking lot or right of way. Trees may be massed for pleasing aesthetic effects.
 - g. Enhanced landscaping shall be provided at all driveway entries and street corner locations. The review of all utility boxes, transformers etc. shall be coordinated to provide adequate screening from public view.
 - h. Landscaping on three sides of any trash enclosure.
 - i. All site perimeter and parking lot landscape and irrigation shall be installed prior to the release of certificate of any occupancy permits for the site or pad in question (master plot plan).
10. Prior to issuance of building permits, the Planning Division shall review and approve the location and method of enclosure or screening of transformer cabinets, commercial gas meters and back flow preventers as shown on the final working drawings. Location and screening shall comply with the following criteria : transformer cabinets and commercial gas meters shall not be located within required setbacks and shall be screened from public view either by architectural treatment or landscaping; multiple electrical meters shall be fully enclosed and incorporated into the overall architectural design of the building (s); back-flow preventers shall be screened by landscaping. (GP Objective 43.30)
 11. Prior to issuance of a building permit, the developer/property owner or developer's successor-in-interest shall pay all applicable impact fees due at permit issuance, including but not limited to Multi-species Habitat Conservation Plan (MSHCP) mitigation fees. (Ord)
 12. Prior to building final, the developer/owner or developer's/owner' s successor-in-interest shall pay all applicable impact fees, including but not limited to Transportation Uniform Mitigation fees (TUMF), and the City's adopted Development Impact Fees. (Ord)
 13. Prior to issuance of building permits, for projects that will be phased, a phasing plan shall be submitted to and approved by the Planning Division if occupancy is proposed to be phased.
 14. Prior to or at building plan check submittal, two copies of a detailed, on -site, computer generated, point-by-point comparison lighting plan, including exterior building, parking lot, and landscaping lighting, shall be submitted to the Building Division for review and approval by the Planning Division prior to the issuance of a building permit. The lighting plan shall be generated on the plot plan and shall be integrated with the final landscape plan. The plan shall indicate the manufacturer's specifications for light fixtures used, shall include style, illumination, location, height and method of shielding per the City's Municipal Code requirements. (MC 9.08.100, 9.16.280)
 15. Prior to issuance of building permits, screening details shall be addressed on the building plans for roof top equipment submitted for Planning Division review and

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- approval through the building plan check process. All equipment shall be completely screened so as not to be visible from public view, and the screening shall be an integral part of the building.
16. Prior to issuance of any grading permit, all Conditions of Approval and Mitigation Measures shall be printed on the grading plans.
 17. Prior to the issuance of grading permits, decorative (e.g. colored/scored concrete or as approve by the Planning Official) pedestrian pathways across circulation aisles/paths shall be provided throughout the development to connect commercial buildings with parking and/or the public right-of-way. The pathways shall be shown on the precise grading plan. (GP Objective 46.8, DG)
 18. Prior to issuance of any grading permits, mitigation measures contained in the Mitigation Monitoring Program approved with this project shall be implemented as provided therein. A mitigation monitoring fee, as provided by City ordinance, shall be paid by the applicant within 30 days of project approval. No City permit or approval shall be issued until such fee is paid. (CEQA)
 19. Prior to issuance of grading permits, the developer shall pay the applicable Stephens' Kangaroo Rat (SKR) Habitat Conservation Plan mitigation fee. (Ord)
 20. If potential historic, archaeological, Native American cultural resources or paleontological resources are uncovered during excavation or construction activities at the project site, work in the affected area must cease immediately and a qualified person (meeting the Secretary of the Interior's standards (36CFR61)) shall be consulted by the applicant to evaluate the find, and as appropriate recommend alternative measures to avoid, minimize or mitigate negative effects on the historic, prehistoric, or paleontological resource. Determinations and recommendations by the consultant shall be immediately submitted to the Planning Division for consideration, and implemented as deemed appropriate by the Community Development Director, in consultation with the State Historic Preservation Officer (SHPO) and any and all affected Native American Tribes before any further work commences in the affected area.

If human remains are discovered during grading and other construction excavation, no further disturbance shall occur until the County Coroner has made necessary findings as to origin. If the County Coroner determines that the remains are potentially Native American, the California Native American Heritage Commission shall be notified within 5-days of the published finding to be given a reasonable opportunity to identify the "most likely descendant." The "most likely descendant" shall then make recommendations, and engage in consultations concerning the treatment of the remains (California Public Resources Code 5097.98). (GP Objective 23.3, CEQA).
 21. Prior to the issuance of grading permits, the site plan and grading plans shall show decorative hardscape (e.g. colored concrete, stamped concrete, pavers or as approved by the Planning Official) consistent and compatible with the design, color and materials of the proposed development for all driveway ingress /egress locations of the project.
 22. Prior to the issuance of grading permits, a temporary project identification sign shall be erected on the site in a secure and visible manner. The sign shall be conspicuously posted at the site and remain in place until occupancy of the project. The sign shall include the following:

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- a. The name (if applicable) and address of the development.
- b. The developer's name, address, and a 24-hour emergency telephonenumber.

Prior to Building Final or Occupancy

23. Prior to building final, all required landscaping and irrigation shall be installed per plan, certified by the Landscape Architect and inspected by the Planning Division. (MC 9.03.040, MC 9.17).
24. Prior to building final, Planning approved/stamped landscape plans shall be provided to the Community Development Department – Planning Division on a CD disk.

Building Division

25. The proposed non-residential project shall comply with the latest Federal Law, Americans with Disabilities Act, and State Law, California Code of Regulations, Title 24, Chapter 11B for accessibility standards for the disabled including access to the site, exits, bathrooms, work spaces, etc.
26. Prior to submittal, all new development, including residential second units, are required to obtain a valid property address prior to permit application. Addresses can be obtained by contacting the Building Safety Division at 951.413.3350.
27. Contact the Building Safety Division for permit application submittal requirements.
28. Any construction within the city shall only be as follows: Monday through Friday seven a.m. to seven p.m. (except for holidays which occur on weekdays), eight a.m. to four p.m.; weekends and holidays (as observed by the city and described in the Moreno Valley Municipal Code Chapter 2.55), unless written approval is first obtained from the Building Official or City Engineer.
29. Building plans submitted shall be signed and sealed by a California licensed design professional as required by the State Business and Professions Code.
30. The proposed development shall be subject to the payment of required development fees as required by the City's current Fee Ordinance at the time a building application is submitted or prior to the issuance of permits as determined by the City.
31. The proposed project will be subject to approval by the Eastern Municipal Water District and all applicable fees and charges shall be paid prior to permit issuance. Contact the water district at 951.928.3777 for specific details.
32. All new structures shall be designed in conformance to the latest design standards adopted by the State of California in the California Building Code, (CBC) Part 2, Title 24, California Code of Regulations including requirements for allowable area, occupancy separations, fire suppression systems, accessibility, etc. The current code edition is the 2019 CBC.
33. The proposed project's occupancy shall be classified by the Building Official and must comply with exiting, occupancy separation(s) and minimum plumbing fixture requirements. Minimum plumbing fixtures shall be provided per the 2019 California Plumbing Code, Table 422.1. The occupant load and occupancy classification shall be determined in accordance with the California Building Code.

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34. Riverside County Approvals required for Onsite Water Treatment System.
35. Prior to permit issuance, every applicant shall submit a properly completed Waste Management Plan (WMP), as a portion of the building or demolition permit process. (MC 8.80.030)

FIRE DEPARTMENT**Fire Prevention Bureau**

36. Prior to issuance of Certificate of Occupancy or Building Final, all commercial buildings shall display street numbers in a prominent location on the street side and rear access locations. The numerals shall be a minimum of twelve inches in height. (CFC 505.1, MVMC 8.36.060[I])
37. Prior to issuance of Certificate of Occupancy or Building Final, the applicant/developer shall install a fire sprinkler system based on square footage and type of construction, occupancy or use. Fire sprinkler plans shall be submitted to the Fire Prevention Bureau for approval prior to installation. (CFC Chapter 9, MVMC 8.36.100[D])
38. Prior to issuance of a Certificate of Occupancy or Building Final, a "Knox Box Rapid Entry System" shall be provided. The Knox-Box shall be installed in an accessible location approved by the Fire Code Official. All exterior security emergency access gates shall be electronically operated and be provided with Knox key switches for access by emergency personnel. (CFC 506.1)
39. The minimum number of fire hydrants required, as well as the location and spacing of fire hydrants, shall comply with the C.F.C., MVMC, and NFPA 24. Fire hydrants shall be located no closer than 40 feet to a building. A fire hydrant shall be located within 50 feet of the fire department connection for buildings protected with a fire sprinkler system. The size and number of outlets required for the approved fire hydrants are (6" x 4" x 2 1/2" x 2 1/2") (CFC 507.5.1, 507.5.7, Appendix C, NFPA 24-7.2.3, MVMC 912.2.1)
40. The Fire Prevention Bureau is required to set a minimum fire flow for the remodel or construction of all commercial buildings per CFC Appendix B and Table B 105.1. The applicant/developer shall provide documentation to show there exists a water system capable of delivering said waterflow for 2 hour(s) duration at 20-PSI residual operating pressure. The required fire flow may be adjusted during the approval process to reflect changes in design, construction type, or automatic fire protection measures as approved by the Fire Prevention Bureau. Specific requirements for the project will be determined at time of submittal. (CFC 507.3, Appendix B)
41. Prior to issuance of Certificate of Occupancy or Building Final, the applicant/developer shall be responsible for obtaining underground and /or above ground tank permits for the storage of combustible liquids, flammable liquids, or any other hazardous materials from both the County of Riverside Community Health Agency Department of Environmental Health and the Fire Prevention Bureau. (CFC 105)
42. Prior to issuance of Building Permits, the applicant/developer shall furnish one copy of the water system plans to the Fire Prevention Bureau for review. Plans shall: a. Be signed by a registered civil engineer or a certified fire protection engineer; b. Contain a Fire Prevention Bureau approval signature block; and c. Conform to hydrant type, location, spacing of new and existing hydrants and minimum fire flow required as

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determined by the Fire Prevention Bureau. The required water system, including fire hydrants, shall be installed, made serviceable, and be accepted by the Moreno Valley Fire Department prior to beginning construction. They shall be maintained accessible.

PUBLIC WORKS DEPARTMENT**Land Development**

43. Aggregate slurry, as defined in Section 203-5 of Standard Specifications for Public Works Construction, shall be required prior to 90% security reduction or the end of the one-year warranty period of the public streets as approved by the City Engineer. If slurry is required, a slurry mix design shall be submitted for review and approved by the City Engineer. The latex additive shall be Ultra Pave 70 (for anionic) or Ultra Pave 65 K (for cationic) or an approved equal per the geotechnical report. The latex shall be added at the emulsion plant after weighing the asphalt and before the addition of mixing water. The latex shall be added at a rate of two to two-and-one-half (2 to 2½) parts to one-hundred (100) parts of emulsion by volume. Any existing striping shall be removed prior to slurry application and replaced per City standards.
44. The developer shall comply with all applicable City ordinances and resolutions including the City's Municipal Code (MC) and if subdividing land, the Government Code (GC) of the State of California, specifically Sections 66410 through 66499.58, said sections also referred to as the Subdivision Map Act (SMA). [MC 9.14.010]
45. The final approved conditions of approval (COAs) issued and any applicable Mitigation Measures by the Planning Division shall be photographically or electronically placed on mylar sheets and included in the Grading and Street Improvement plans.
46. The developer shall monitor, supervise and control all construction related activities, so as to prevent these activities from causing a public nuisance, including but not limited to, insuring strict adherence to the following:
 - a. Removal of dirt, debris, or other construction material deposited on any public street no later than the end of each working day.
 - b. Observance of working hours as stipulated on permits issued by the Land Development Division.
 - c. The construction site shall accommodate the parking of all motor vehicles used by persons working at or providing deliveries to the site.
 - d. All dust control measures per South Coast Air Quality Management District (SCAQMD) requirements during the grading operations.

Violation of any condition, restriction or prohibition set forth in these conditions shall subject the owner, applicant, developer or contractor (s) to remedy as noted in City Municipal Code 8.14.090. In addition, the City Engineer or Building Official may suspend all construction related activities for violation of any condition, restriction or prohibition set forth in these conditions until such time as it has been determined that all operations and activities are in conformance with these conditions.
47. If improvements associated with this project are not initiated within two (2) years of the date of approval of the Public Improvement Agreement (PIA), the City Engineer may require that the engineer's estimate for improvements associated with the project be modified to reflect current City construction costs in effect at the time of request for an extension of time for the PIA or issuance of a permit. [MC 9.14.210(B)(C)]
48. The developer shall protect downstream properties from damage caused by alteration of drainage patterns (i.e. concentration or diversion of flow, etc). Protection shall be provided

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- by constructing adequate drainage facilities, including, but not limited to, modifying existing facilities or by securing a drainage easement. [MC 9.14.110]
49. Public drainage easements, when required, shall be a minimum of 25 feet wide and shall be shown on the map and plan, and noted as follows: "Drainage Easement – no structures, obstructions, or encroachments by land fills are allowed." In addition, the grade within the easement area shall not exceed a 3:1 (H:V) slope, unless approved by the City Engineer.
 50. The maintenance responsibility of the proposed storm drain line shall be clearly identified. Storm drain lines within private property will be privately maintained and those within public streets will be publicly maintained.
 51. This project shall submit civil engineering design plans, reports and /or documents (prepared by a registered/licensed civil engineer) for review and approval by the City Engineer per the current submittal requirements, prior to the indicated threshold or as required by the City Engineer. The submittal consists of, but is not limited to, the following:
 - a. Lot line adjustment combining all parcels into a single parcel (recordation prior to building permit issuance);
 - b. Rough grading w/ erosion control plan (prior to grading permit issuance);
 - c. Precise grading w/ erosion control plan (prior to building permit issuance);
 - d. Street/Storm drain w/ signing & striping plan (prior to encroachment permit issuance);
 - e. Final drainage study (prior to grading plan approval);
 - f. Final WQMP (prior to grading plan approval);
 - g. Offer of Dedication for corner cut-off (prior to improvement plan approval);
 - h. As-Built revision for all plans (prior to Occupancy release)
 52. Water quality best management practices (BMPs) designed to meet Water Quality Management Plan (WQMP) requirements for single-family residential development shall not be used as a construction BMP. Water quality BMPs shall be maintained for the entire duration of the project construction and be used to treat runoff from those developed portions of the project. Water quality BMPs shall be protected from upstream construction related runoff by having proper best management practices in place and maintained. Water quality BMPs shall be graded per the approved design plans and once landscaping and irrigation has been installed, it and its maintenance shall be turned over to an established Homeowner's Association (HOA). The Homeowner's Association shall enter into an agreement with the City for basin maintenance.

Prior to Grading Plan Approval

53. Resolution of all drainage issues shall be as approved by the City Engineer.
54. A final detailed drainage study (prepared by a registered/licensed civil engineer) shall be submitted for review and approved by the City Engineer. The study shall include, but not be limited to: existing and proposed hydrologic conditions as well as hydraulic calculations for all drainage control devices and storm drain lines. The study shall analyze 1, 3, 6 and 24-hour duration events for the 2, 5, 10 and 100-year storm events [MC 9.14.110(A.1)]. A digital (pdf) copy of the approved drainage study shall be submitted to the Land Development Division.

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55. Emergency overflow areas shall be shown at all applicable drainage improvement locations in the event that the drainage improvement fails or exceeds full capacity. This may include, but not be limited to, secondary catch basins or emergency spillway.
56. A final project-specific Water Quality Management Plan (WQMP) shall be submitted for review and approved by the City Engineer, which:
- a. Addresses Site Design Best Management Practices (BMPs) such as minimizing impervious areas, maximizing permeability, minimizes directly connected impervious areas to the City's street and storm drain systems, and conserves natural areas;
 - b. Incorporates Source Control BMPs and provides a detailed description of their implementation;
 - c. Describes the long-term operation and maintenance requirements for BMPs requiring maintenance; and
 - d. Describes the mechanism for funding the long-term operation and maintenance of the BMPs.

A copy of the final WQMP template can be obtained on the City's Website or by contacting the Land Development Division. A digital (pdf) copy of the approved final project-specific Water Quality Management Plan (WQMP) shall be submitted to the Land Development Division.

57. The final project-specific Water Quality Management Plan (WQMP) shall be consistent with the approved P-WQMP, as well as in full conformance with the document: "Water Quality Management Plan - A Guidance Document for the Santa Ana Region of Riverside County" dated October 22, 2012. The F-WQMP shall be submitted and approved prior to application for and issuance of grading permits. At a minimum, the F-WQMP shall include the following: Site Design BMPs; Source Control BMPs, Treatment Control BMPs, Operation and Maintenance requirements for BMPs and sources of funding for BMP implementation.
- a. The Applicant has proposed to incorporate the use of modular wetland system. Final design and sizing details of all BMPs must be provided in the first submittal of the F-WQMP. The Applicant acknowledges that more area than currently shown on the plans may be required to treat site runoff as required by the WQMP guidance document.
 - b. The Applicant shall substantiate the applicable Hydrologic Condition of Concerns (HCOC) in Section F of the F-WQMP. The HCOC designates that the project will be exempt from mitigation requirements based on Exemption 3.
 - c. All proposed LID BMP's shall be designed in accordance with the RCFC&WCD's Design Handbook for Low Impact Development Best Management Practices, dated September 2011.
 - d. The proposed LID BMP's as identified in the project-specific P-WQMP shall be incorporated into the Final WQMP.
 - e. The NPDES notes per City Standard Drawing No. MVFE-350-0 shall be included in the grading plans.
 - f. Post-construction treatment control BMPs, once placed into operation for post-construction water quality control, shall not be used to treat runoff from construction sites or unstabilized areas of the site.
 - g. Prior to precise grading plan approval, the grading plan shall show any proposed trash enclosure to include a cover (roof) and sufficient size for dual bin (1 for trash and 1 for recyclables). The architecture shall be approved by the Planning Division and any structural approvals shall be made by the Building

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and Safety Division.

58. The developer shall ensure compliance with the City Grading ordinance, these Conditions of Approval and the following criteria:
- a. The project street and lot grading shall be designed in a manner that perpetuates the existing natural drainage patterns with respect to tributary drainage area and outlet points. Unless otherwise approved by the City Engineer, lot lines shall be located at the top of slopes.
 - b. Any grading that creates cut or fill slopes adjacent to the street shall provide erosion control, sight distance control, and slope easements as approved by the City Engineer.
 - c. All improvement plans are substantially complete and appropriate clearance letters are provided to the City.
 - d. A soils/geotechnical report (addressing the soil's stability and geological conditions of the site) shall be submitted to the Land Development Division for review. A digital (pdf) copy of the soils/geotechnical report shall be submitted to the Land Development Division.
59. Grading plans (prepared by a registered/licensed civil engineer) shall be submitted for review and approved by the City Engineer per the current submittal requirements.
60. The developer shall select Low Impact Development (LID) Best Management Practices (BMPs) designed per the latest version of the Water Quality Management Plan (WQMP) - a guidance document for the Santa Ana region of Riverside County.
61. The developer shall pay all remaining plan check fees.
62. A Storm Water Pollution Prevention Plan (SWPPP) shall be prepared in conformance with the State's current Construction Activities Storm Water General Permit. A copy of the current SWPPP shall be kept at the project site and be available for review upon request.
63. For projects that will result in discharges of storm water associated with construction with a soil disturbance of one or more acres of land, the developer shall submit a Notice of Intent (NOI) and obtain a Waste Discharger's Identification number (WDID#) from the State Water Quality Control Board (SWQCB) which shall be noted on the grading plans.

Prior to Grading Permit

64. A receipt showing payment of the Area Drainage Plan (ADP) fee to Riverside County Flood Control and Water Conservation District shall be submitted. [MC9.14.100(O)]
65. A digital (pdf) copy of all approved grading plans shall be submitted to the Land Development Division.
66. Security, in the form of a cash deposit (preferable), bond or letter of credit shall be submitted as a guarantee of the implementation and maintenance of erosion control measures. At least twenty-five (25) percent of the required security shall be in the form of a cash deposit with the City. [MC 8.21.160(H)]
67. Security, in the form of a cash deposit (preferable), bond or letter of credit shall be submitted as a guarantee of the completion of the grading operations for the project.

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[MC 8.21.070]

68. The developer shall pay all applicable inspection fees.

Prior to Improvement Plan Approval

69. The developer is required to bring any existing access ramps adjacent to and fronting the project to current ADA (Americans with Disabilities Act) requirements. However, when work is required in an intersection that involves or impacts existing access ramps, all access ramps in that intersection shall be retrofitted to comply with current ADA requirements, unless otherwise approved by the City Engineer.
70. The developer shall submit clearances from all applicable agencies, and pay all applicable plan check fees.
71. The street improvement plans shall comply with current City policies, plans and applicable City standards (i.e. MVSI-160 series, etc.) throughout this project.
72. The design plan and profile shall be based upon a centerline, extending beyond the project boundaries a minimum distance of 300 feet at a grade and alignment approved by the City Engineer.
73. Drainage facilities (i.e. catch basins, etc.) with sump conditions shall be designed to convey the tributary 100-year storm flows. Secondary emergency escape shall also be provided.
74. The hydrology study shall be designed to accept and properly convey all off -site drainage flowing onto or through the site. In the event that the City Engineer permits the use of streets for drainage purposes, the provisions of current City standards shall apply. Should the quantities exceed the street capacity or the use of streets be prohibited for drainage purposes, as in the case where one travel lane in each direction shall not be used for drainage conveyance for emergency vehicle access on streets classified as minor arterials and greater, the developer shall provide adequate facilities as approved by the City Engineer. [MC 9.14.110 A.2]
75. All public improvement plans (prepared by a licensed/registered civil engineer) shall be submitted for review and approved by the City Engineer per the current submittal requirements. The plans shall show the following:
- a. Kimberly Avenue, a Local street, shall be constructed to half width plus 12 feet per City Standard Plan No. MVSI-107A-0. This includes, but is not limited, to the following: curb, gutter, asphalt base, asphalt concrete, street light, catch basin, and storm drain.
 - b. At a minimum, a two (2) inch grind and overlay shall be required across the entire street (i.e. curb-to-curb, edge of pavement to edge of pavement) and along the length of the project, on Alessandro Boulevard, Redlands Boulevard, and Kimberly Avenue. The overlay shall consist of PG 64-16 ARHM GG-C. Additional pavement rehabilitation may be required based on pavement core sample results.
 - c. The proposed storm drain within Kimberly Avenue shall be a minimum 24" diameter RCP which extends from the project easterly boundary and connects to the Moreno MDP Line F-2 within Redlands Boulevard.
76. Any missing or deficient existing improvements along the project frontage within Alessandro

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Boulevard, Redlands Boulevard and Kimberly Avenue shall be constructed or secured for construction. The City Engineer may require the ultimate structural section for pavement or provide core test results confirming that existing pavement section is per current City Standards; additional signing & striping to accommodate increased traffic imposed by the development, etc.

77. For non-subdivision projects, all street dedications shall be free of encumbrances, irrevocably offered to the public and shall continue in force until the City accepts or abandons such offers, unless otherwise approved by the City Engineer. This project will be required to dedicate a corner cut-back at the southeast corner of Redlands Boulevard and Alessandro Boulevard per City Standard Plan No. MVSI-165-0.
78. The plans shall indicate any restrictions on trench repair pavement cuts to reflect the City's moratorium on disturbing newly-constructed pavement less than three (3) years old and recently slurry sealed streets less than one (1) year old. Pavement cuts may be allowed for emergency repairs or as specifically approved in writing by the City Engineer. Special requirements shall be imposed for repaving, limits to be determined by the City Engineer.
79. All dry and wet utilities shall be shown on the plans and any crossings shall be potholed to determine actual location and elevation. Any conflicts shall be identified and addressed on the plans. The pothole survey data shall be submitted to Land Development with the public improvement plans for reference purposes only. The developer is responsible to coordinate with all affected utility companies and bear all costs of any utility relocation.

Prior to Encroachment Permit

80. A digital (pdf) copy of all approved improvement plans shall be submitted to the Land Development Division.
81. All applicable inspection fees shall be paid.
82. For non-subdivision projects, execution of a Public Improvement Agreement (PIA) and/or security (in the form of a cash deposit or other approved means) may be required as determined by the City Engineer. [MC 9.14.220]
83. The plans shall indicate any restrictions on trench repair pavement cuts to reflect the City's moratorium on disturbing newly-constructed pavement less than three (3) years old and recently slurry sealed streets less than one (1) year old. Pavement cuts may be allowed for emergency repairs or as specifically approved in writing by the City Engineer. Special requirements shall be imposed for repaving, limits to be determined by the City Engineer.
84. Any work performed within public right-of-way requires an encroachment permit.

Prior to Building Permit

85. An engineered-fill certification, rough grade certification and compaction report shall be submitted for review and approved by the City Engineer. A digital (pdf) copy of the approved compaction report shall be submitted to the Land Development Division. All pads shall meet pad elevations per approved grading plans as noted by the setting of "blue-top" markers installed by a registered land surveyor or licensed civil engineer.

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86. For non-subdivision projects, the developer shall guarantee the completion of all related public improvements required for this project by executing a Public Improvement Agreement (PIA) with the City and posting the required security. [MC 9.14.220]
- a. Kimberly Avenue, a Local street, shall be constructed to half width plus 12 feet per City Standard Plan No. MVSI-107A-0. This includes, but is not limited, to the following: curb, gutter, asphalt base, asphalt concrete, street light, catch basin, and storm drain.
 - b. At a minimum, a two (2) inch grind and overlay shall be required across the entire street (i.e. curb-to-curb, edge of pavement to edge of pavement) and along the length of the project, on Alessandro Boulevard, Redlands Boulevard, and Kimberly Avenue. The overlay shall consist of PG 64-16 ARHM GG-C. Additional pavement rehabilitation may be required based on pavement core sample results.
 - c. The proposed storm drain within Kimberly Avenue shall be a minimum 24" diameter RCP which extends from the project easterly boundary and connects to the Moreno MDP Line F-2 within Redlands Boulevard.
87. A lot line adjustment (LLA) shall be submitted for review, approval, and recordation. The LLA shall include Assessor Parcel Numbers 478-030-029, 478-430-030 and 478-030-031. The purpose of the LLA is to combine the said parcels into one parcel in order to accommodate the proposed building with on-site improvements and meet minimum lot size requirements. The LLA shall be prepared in such a way that the building and on-site improvements are not constructed across property lines and to meet all minimum building setbacks.
88. For Commercial/Industrial projects, the owner may have to secure coverage under the State's General Industrial Activities Storm Water Permit as issued by the State Water Resources Control Board.
89. For non-subdivision projects, all street dedications shall be free of encumbrances, irrevocably offered to the public and shall continue in force until the City accepts or abandons such offers, unless otherwise approved by the City Engineer.
90. A walk through with a Land Development Inspector shall be scheduled to inspect existing improvements within public right of way along project frontage. Any missing, damaged or substandard improvements including ADA access ramps that do not meet current City standards shall be required to be installed, replaced and /or repaired. The applicant shall post security to cover the cost of the repairs and complete the repairs within the time allowed in the public improvement agreement used to secure the improvements.
91. Certification to the line, grade, flow test and system invert elevations for the water quality control BMPs shall be submitted for review and approved by the City Engineer (excluding models homes).

Prior to Occupancy

92. All outstanding fees shall be paid.
93. All required as-built plans (prepared by a registered/licensed civil engineer) shall be submitted for review and approved by the City Engineer per the current submittal requirements.

CONDITIONS OF APPROVAL

Plot Plan (PEN19-0058)

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94. The final/precise grade certification shall be submitted for review and approved by the City Engineer.
95. For commercial, industrial and multi-family projects, in compliance with Proposition 218, the developer shall agree to approve the City of Moreno Valley NPDES Regulatory Rate Schedule that is in place at the time of certificate of occupancy issuance. Under the current permit for storm water activities required as part of the National Pollutant Discharge Elimination System (NPDES) as mandated by the Federal Clean Water Act, this project is subject to the following requirements:
- a. Select one of the following options to meet the financial responsibility to provide storm water utilities services for the required continuous operation, maintenance, monitoring system evaluations and enhancements, remediation and/or replacement, all in accordance with Resolution No. 2002-46.
 - i. Participate in the mail ballot proceeding in compliance with Proposition 218, for the Common Interest, Commercial, Industrial and Quasi-Public Use NPDES Regulatory Rate Schedule and pay all associated costs with the ballot process; or Establish an endowment to cover future City costs as specified in the Common Interest, Commercial, Industrial and Quasi-Public Use NPDES Regulatory Rate Schedule.
 - b. Notify the Special Districts Division of the intent to request building permits 90 days prior to their issuance and the financial option selected. The financial option selected shall be in place prior to the issuance of certificate of occupancy. [California Government Code & Municipal Code]
96. The developer shall complete all public improvements in conformance with current City standards, except as noted in the Special Conditions, including but not limited to the following:
- a. Street improvements including, but not limited to: pavement, base, curb and/or gutter, cross gutters, spandrel, sidewalks, drive approaches, pedestrian ramps, street lights (<MVU: SL-2 / SCE: LS-2>), signing, striping, under sidewalk drains, landscaping and irrigation, medians, pavement tapers/transitions and traffic control devices as appropriate.
 - b. Storm drain facilities including, but not limited to: storm drain pipe, storm drain laterals, open channels, catch basins and local depressions.
 - c. City-owned utilities.
 - d. Sewer and water systems including, but not limited to: sanitary sewer, potable water and recycled water.
 - e. Under grounding of all existing and proposed utilities adjacent to and on -site. [MC 9.14.130]
 - f. Relocation of overhead electrical utility lines including, but not limited to: electrical, cable and telephone.
97. For commercial, industrial and multi-family projects, a "Stormwater Treatment Device and Control Measure Access and Maintenance Covenant ", "Maintenance Agreement for Water Quality (and Landscape) Improvements located in the public right-of-way" and a "Declaration of Restrictive Covenants (encroachment on City easement)" shall be recorded to provide public notice of the maintenance requirements to be implemented per the approved final project-specific WQMP. A boilerplate copy of the covenants and agreements can be obtained by contacting the Land Development Division.
98. The applicant shall ensure the following, pursuant to Section XII. I. of the 2010 NPDES Permit:
- a. Field verification that structural Site Design, Source Control and Treatment

CONDITIONS OF APPROVAL

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- Control BMPs are designed, constructed and functional in accordance with the approved Final Water Quality Management Plan (WQMP).
- b. Certification of best management practices (BMPs) from a state licensed civil engineer. An original WQMP BMP Certification shall be submitted for review and approved by the City Engineer.
99. The Developer shall comply with the following water quality related items:
- a. Notify the Land Development Division prior to construction and installation of all structural BMPs so that an inspection can be performed.
 - b. Demonstrate that all structural BMPs described in the approved final project-specific WQMP have been constructed and installed in conformance with the approved plans and specifications;
 - c. Demonstrate that Developer is prepared to implement all non -structural BMPs described in the approved final project-specific WQMP; and
 - d. Demonstrate that an adequate number of copies of the approved final project-specific WQMP are available for future owners/occupants.
 - e. Clean and repair the water quality BMP's, including re-grading to approved civil drawing if necessary.
 - f. Obtain approval and complete installation of the irrigation and landscaping.

Special Districts Division

100. **NEW STREET LIGHT INSTALLATION FEES.** Prior to the issuance of the first building permit for this project, the Developer shall pay New Street Light Installation Fees for all applicable Residential and Arterial Street Lights required for this development. Payment shall be made to the City of Moreno Valley and collected by the Land Development Division. Fees are based upon the Advanced Energy fee rate in place at the time of payment, as set forth in the current Listing of City Fees, Charges, and Rates adopted by City Council. The Developer shall provide a copy of the receipt to the Special Districts Division (specialdistricts@moval.org). Any change in the project which may increase the number of street lights to be installed will require payment of additional Advanced Energy fees at the then current fee. Questions may be directed to the Special Districts Division at 951.413.3480 or specialdistricts@moval.org.
101. This project is conditioned for a proposed district to provide a funding source for the operation and maintenance of public improvements and /or services associated with new development in that territory. The Developer shall satisfy this condition with one of the options outlined below.
- a. Participate in a special election for maintenance/services and pay all associated costs of the election process and formation, if any. Financing may be structured through a Community Facilities District, Landscape and Lighting MaintenanceDistrict, or other financing structure as determined by the City; or
 - b. Establish an endowment fund to cover the future maintenance and /or service costs.

The Developer must notify the Special Districts Division at 951.413.3480 or at specialdistricts@moval.org when submitting the application for building permit issuance. If the first building permit is pulled prior to formation of the district, this condition will not apply. If the district has been or is in the process of being formed the Developer must inform the Special Districts Division of its selected financing option (a. or b. above). The option for participating in a special election requires 90 days to complete the special election process. This allows adequate time to be in compliance with the provisions of Article 13C of the California Constitution.

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- The financial option selected shall be in place prior to the issuance of the first certificate of occupancy for the project.
102. This project has been identified to be included in the formation of a Community Facilities District (Mello-Roos) for Public Safety services, including but not limited to Police, Fire Protection, Paramedic Services, Park Rangers, and Animal Control services. The property owner(s) shall not protest the formation; however, they retain the right to object to the rate and method of maximum special tax. In compliance with Proposition 218, the property owner shall agree to approve the mail ballot proceeding (special election) for either formation of the CFD or annexation into an existing district. The Developer must notify the Special Districts Division at 951.413.3480 or at specialdistricts@moval.org when submitting the application for building permit issuance to determine the requirement for participation. If the first building permit is pulled prior to formation of the district, this condition will not apply. If the condition applies, the special election will require a minimum of 90 days prior to issuance of the first building permit. This allows adequate time to be in compliance with the provisions of Article 13C of the California Constitution. (California Government Code Section 53313 et. seq.)
 103. The ongoing maintenance of any landscaping required to be installed behind the curb shall be the responsibility of the property owner.
 104. Street Light Authorization forms for all street lights that are conditioned to be installed as part of this project must be submitted to the Special Districts Division for approval, prior to street light installation. The Street Light Authorization form can be obtained from the utility company providing electric service to the project, either Moreno Valley Utility or Southern California Edison. For questions, contact the Special Districts Division at 951.413.3480 or specialdistricts@moval.org.
 105. The parcel(s) associated with this project have been incorporated into the Moreno Valley Community Services District Zone A (Parks & Community Services) and Zone C (Arterial Street Lighting). All assessable parcels therein shall be subject to annual parcel taxes for Zone A and Zone C for operations and capital improvements.
 106. This project is conditioned to provide a funding source for the following special financing program(s):
 - a. Street Lighting Services for capital improvements, energy charges, and maintenance.
 - b. If a median is required, Landscape Maintenance Services for parkway, open space, and/or median landscaping on Redlands Blvd.
The Developer's responsibility is to provide a funding source for the capital improvements and the continued maintenance. The Developer shall satisfy this condition with one of the options below.
 - i. Participate in a special election (mail ballot proceeding) and pay all associated costs of the special election and formation, if any. Financing may be structured through a Community Services District zone, Community Facilities District, Landscape and Lighting Maintenance District, or other financing structures determined by the City; or
 - ii. Establish a Property Owner's Association (POA) or Home Owner's Association (HOA) which will be responsible for any and all operation and maintenance costs

The Developer must notify the Special Districts Division at 951.413.3480 or at specialdistricts@moval.org of its selected financial option when submitting the application for building permit issuance. The option for participating in a special

CONDITIONS OF APPROVAL

Plot Plan (PEN19-0058)

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election requires approximately 90 days to complete the special election process. This allows adequate time to be in compliance with the provisions of Article 13C of the California Constitution.

The financial option selected shall be in place prior to the issuance of the first certificate of occupancy for the project.

107. If a median is required, for those areas to be maintained by the City and prior to the issuance of the first Building Permit, Planning Division (Community Development Department), Special Districts Division (the Public Works Department) and Transportation Division (the Public Works Department) shall review and approve the final median, parkway, slope, and/or open space landscape/irrigation plans as designated on the tentative map or in these Conditions of Approval prior to the issuance of the first Building Permit.
108. If a median is required, parkway, median, slope and/or open space landscape areas maintained as part of the City of Moreno Valley Community Facilities District 2014-01 shall be required to have independent utility systems, including but not limited to water, electric, and telephone services. An independent irrigation controller and pedestal will also be required. Combining utility systems with existing or future landscape areas not associated with the City of Moreno Valley Community Facilities District (CFD) landscaping will not be permitted.
109. If a median is required, inspection fees for the monitoring of landscape installation associated with the City of Moreno Valley maintained parkways /medians are due prior to the required pre-construction meeting. (MC 3.32.040)
110. If a median is required, plans for parkway, median, slope, and /or open space landscape areas designated in the project's Conditions of Approval for incorporation into a City Coordinated landscape maintenance program, shall be prepared and submitted in accordance with the City of Moreno Valley Public Works Department Landscape Design Guidelines. The guidelines are available on the City's website at www.moval.org/sd or from the Special Districts Division (951.413.3480 or specialdistricts@moval.org).
111. If a median is required, parkway, open space, and/or median landscaping specified in the project's Conditions of Approval shall be constructed in compliance with the approved landscape plans and completed prior to the issuance of the first Certificate of Occupancy/Building Final for this project.
112. If a median is required, landscape and irrigation plans for parkway, median, slope, and/or open space landscape areas designated to be maintained by the City shall be placed on compact disk (CD) in pdf format. The CD shall include "As Built" plans, revisions, and changes. The CD will become the property of the City of Moreno Valley and the Moreno Valley Community Services District.
113. MAJOR INFRASTRUCTURE FINANCING DISTRICT. This project has been identified to potentially be included in the formation of a special financing district for the construction and maintenance of major infrastructure improvements which may include but are not limited to thoroughfares, bridges, and certain flood control improvements. The property owner(s) shall participate in such district and pay any special tax, assessment, or fee levied upon the project property for such district. At the time of the public hearing to consider formation of or annexation into the district, the qualified elector(s) will not protest the formation or annexation, but will retain the right to object to any eventual tax/assessment/fee that is not equitable should the financial burden of the

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tax/assessment/fee not be reasonably proportionate to the benefit the affected property obtains from the improvements to be installed and /or maintained. The Developer must notify the Special Districts Division at 951.413.3480 or at specialdistricts@moval.org when submitting an application for the first building permit to determine whether the development will be subjected to this condition. If subject to the condition, the special election requires a minimum 90-day process in compliance with the provisions of Article 13C of the California Constitution.

114. Commercial (BP) If Land Development, a Division of the Public Works Department, requires this project to supply a funding source necessary to provide for, but not limited to, stormwater utilities services for the continuous operation, remediation and/or replacement, monitoring, systems evaluations and enhancement of on -site facilities and performing annual inspections of the affected areas to ensure compliance with state mandated stormwater regulations, a funding source needs to be established. The Developer must notify the Special Districts Division at 951.413.3480 or at specialdistricts@moval.org of its selected financial option for the National Pollution Discharge Elimination System (NPDES) program when submitting the application for the first building permit issuance (see Land Development's related condition). Participating in a special election the process requires a 90 day period prior to the City's issuance of a building permit. This allows adequate time to be in compliance with the provisions of Article 13D of the California Constitution. (California Health and Safety Code Sections 5473 through 5473.8 (Ord. 708 Section 3.1, 2006) & City of Moreno Valley Municipal Code Title3, Section 3.50.050.)
115. PARKS MAINTENANCE FUNDING. Prior to applying for the 1st Building Permit, the qualified elector (e.g. property owner) must initiate the process (i.e. pay the annexation fee or fund an endowment) to provide an ongoing funding source for the continued maintenance, enhancement, and or retrofit of parks, open spaces, linear parks, and/or trails systems, and programs.
This condition must be fully satisfied prior to issuance of the 1st Certificate of Occupancy. This condition will be satisfied with the successful annexation /formation (i.e. special election process) into a special financing district and payment of all costs associated with the special election process. Annexation into a special financing district requires an annual payment of the annual special tax, assessment, or fee levied against the property tax bill, or other lawful means, of the parcels of the project for such district. At the time of the public hearing to consider annexation into or formation of the district, the qualified elector(s) will not protest the annexation or formation, but will retain the right to object to any eventual tax/assessment/fee that is not equitable should the financial burden of the tax/assessment/fee not be reasonably proportionate to the benefit the affected property receives from the improvements to be installed and/or maintained or services provided. The special election requires a minimum 90-day process in compliance with the provisions of Article 13C of the California Constitution, Proposition 218, or other applicable legislation, and consistent with the scheduling for City Council meetings.
Alternatively, the condition can be satisfied by the Developer funding an endowment in an amount sufficient to yield an annual revenue stream that meets the annual obligation. The Developer must contact Special Districts Administration at 951.413.3470 or at SDAdmin@moval.org to satisfy this condition.

Transportation Engineering Division

116. Conditions of approval may be modified or added if a phasing plan is submitted for

CONDITIONS OF APPROVAL

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- this development.
117. All proposed on-site traffic signing and striping should be accordance with the latest California Manual on Uniform Traffic Control Devices (CAMUTCD).
 118. The first parking stall/drive aisle juncture shall be 60 feet from the property line per Municipal Code Section 9.11.080 - A.18 or as approved by the City Engineer.
 119. Sight distance at the proposed roadways and driveways shall conform to City of Moreno Valley Standard No. MVS1-164A,B,C-0 at the time of preparation of final grading, landscape, and street improvement plans.
 120. Prior to final approval of any landscaping or monument sign plans, the project plans shall demonstrate that sight distance at the project driveways conforms to City Standard Plan No. MVS1-164A, B, C-0.
 121. Prior to the final approval of the street improvement plans, a signing and striping plan shall be prepared per City of Moreno Valley Standard Plans - Section 4 for all streets with a cross section 66'/44' and wider.
 122. Prior to issuance of a Certificate of Occupancy, all approved street improvements shall be installed to the satisfaction of the City Engineer.
 123. Prior to issuance of a Building Final or Certificate of Occupancy, all approved signing and striping shall be installed per current City Standards.
 124. Prior to issuance of a construction permit, construction traffic control plans prepared by a qualified, registered Civil or Traffic engineer may be required for plan approval or as required by the City Traffic Engineer.
 125. Prior to issuance of a building permit, the project applicant shall pay all applicable DIF and TUMF. Payment of this fee covers the project's fair share payment towards any future signalization of Alessandro Boulevard and Redlands Boulevard.
 126. Prior to issuance of building permit, the project applicant shall pay to the City of Moreno Valley 15.15 percent of the estimated cost for the intersection improvements at Alessandro Boulevard and Redlands Boulevard.
 127. Prior to the issuance of a certificate of occupancy for the project, driveway access at the following location will be installed as follows:
 - Alessandro Boulevard: Right-in/ Right-out access
 - Redlands Boulevard: Right-in/Right-out access
 128. All project driveways shall conform to Section 9.11.080, and Table 9.11.080-14 of the City's Development Code – Design Guidelines and City of Moreno Valley Standard Plans No. MVS1-112C-0 for commercial driveway approaches.
 129. Prior to issuance of a building permit, the project applicant shall pay to the City of Moreno Valley 100 percent of the estimated cost for communication conduit along the project's frontage along Alessandro Boulevard.
 130. Prior to issuance of a grading permit, the project applicant shall submit an engineer's estimate for intersection improvements including communication conduit along the project's frontage for the City Engineer's approval.

RESOLUTION NUMBER 2021-18

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF MORENO VALLEY, CALIFORNIA, APPROVING CONDITIONAL USE PERMIT (PEN19-0059) FOR A NEW VEHICLE FUELING STATION TO FARM MARKET SITE LOCATED AT THE SOUTHEAST CORNER OF REDLANDS BOULEVARD AND ALESSANDRO BOULEVARD (APN'S: 478-030-029, -030, AND -031)

WHEREAS, the City of Moreno Valley ("City") is a general law city and a municipal corporation of the State of California; and

WHEREAS, Parmjit Singh, ("Developer") has filed an application for the approval of Conditional Use Permit PEN19-0059 ("Application") for a new vehicle fueling station to the Farm Market site ("Project") located at the southeast corner of Redlands Boulevard and Alessandro Boulevard ("Site"); and

WHEREAS, Section 9.02.060 (Conditional Use Permits) of the Moreno Valley Municipal Code acknowledges that the purpose of conditional use permits is to allow the establishment of uses that may have special impacts or uniqueness such that their effect on the surrounding environment cannot be determined in advance of the use being proposed for a particular location and that the conditional use permit application process involves the review of location, design and configuration of improvements related to the project, and the potential impact of the project on the surrounding area based on fixed and established standards; and

WHEREAS, the Application has been evaluated in accordance with Section 9.02.060 (Conditional Use Permits) of the Municipal Code with consideration given to the City's General Plan, Zoning Ordinance, and other applicable laws and regulations; and

WHEREAS, Section 9.02.060 of the Municipal Code imposes conditions of approval upon projects for which a Conditional Use Permit is required, which conditions may be imposed by the Planning Commission to address on-site improvements, off-site improvements, the manner in which the site is used and any other conditions as may be deemed necessary to protect public health, safety and welfare and ensure that the proposed Project will be developed in accordance with the purpose and intent of Title 9 (Planning and Zoning) of the Municipal Code; and

WHEREAS, Staff has presented for the Planning Commission's consideration Conditions of Approval to be imposed upon Conditional Use Permit PEN19-0059, which conditions have been deemed necessary to protect public health, safety and welfare and ensure that the proposed Project will be developed in accordance with the purpose and intent of Title 9 (Planning and Zoning) of the Municipal Code; and

WHEREAS, pursuant to the provisions of Section 9.02.200 (Public Hearing and Notification Procedures) of the Municipal Code and Government Code section 65905, a public hearing was scheduled for May 13, 2021 and notice thereof was duly published and posted, and mailed to all property owners of record within 600 feet of the Site; and

WHEREAS, on May 13, 2021 a duly noticed public hearing was conducted by the Planning Commission; and

WHEREAS, consistent with the requirements of Section 9.02.060 (Conditional Use Permits) of the Municipal Code, at the public hearing the Planning Commission considered Conditions of Approval to be imposed upon Conditional Use Permit PEN19-0059, which were prepared by Planning Division staff who deemed said conditions to be necessary to protect public health, safety and welfare and to ensure the proposed Project will be developed in accordance with the purpose and intent of Title 9 (Planning and Zoning) of the Municipal Code; and

WHEREAS, at the public hearing, the Planning Commission considered whether each of the requisite findings specified in Section 9.02.060 of the Municipal Code and set forth herein could be made with respect to the proposed Project as conditioned by the Conditions of Approval; and

WHEREAS, on May 13, 2021, in accordance with the provisions of the California Environmental Quality Act (CEQA¹) and CEQA Guidelines,² the Planning Commission approved Resolution 2021-15.

NOW, THEREFORE, THE PLANNING COMMISSION OF THE CITY OF MORENO VALLEY, CALIFORNIA, DOES HEREBY RESOLVE AS FOLLOWS:

Section 1. Recitals and Exhibits

That the foregoing Recitals and attached Exhibits are true and correct and are hereby incorporated by this reference.

Section 2. Notice

That pursuant to Government Code section 66020(d)(1), notice is hereby given that the proposed project is subject to certain fees, dedications, reservations and other exactions as provided herein.

Section 3. Evidence

That the Planning Commission has considered all of the evidence submitted into the administrative record for the proposed CUP, including, but not limited to, the following:

- (a) Moreno Valley General Plan and all relevant provisions contained therein;
- (b) Title 9 (Planning and Zoning) of the Moreno Valley Municipal Code and all relevant provisions referenced therein;
- (c) Application for the approval of Conditional Use Permit (CUP) PEN19-0059 and all documents, records and contained therein;
- (d) Conditions of Approval for CUP PEN19-0059, attached hereto as Exhibit A;

¹ Public Resources Code §§ 21000-21177

² 14 California Code of Regulations §§15000-15387

- (e) Staff Report prepared for the Planning Commission's consideration and all documents, records and references related thereto, and Staff's presentation at the public hearing;
- (f) Testimony and/or comments from Applicant and its representatives during the public hearing; and
- (g) Testimony, comments and/or correspondence from all persons that were provided in written format or correspondence, at, or prior to, the public hearing.

Section 4. Findings

That based on the foregoing Recitals and the Evidence contained in the Administrative Record as set forth above, the Planning Commission makes the following findings in approving CUP PEN19-0059.

- (a) The proposed Project is consistent with the goals, objectives, policies and programs of the General Plan;
- (b) The proposed Project complies with all applicable zoning and other regulations;
- (c) The proposed Project will not be detrimental to the public health, safety or welfare or materially injurious to properties or improvements in the vicinity; and
- (d) The location, design and operation of the proposed Project will be compatible with existing and planned land uses in the vicinity.

Section 5. Approval

That based on the foregoing Recitals, Evidence contained in the Administrative Record and Findings set forth above, the Planning Commission hereby approves CUP PEN19-0059 subject to the Conditions of Approval of CUP PEN19-0059, attached hereto as Exhibit A.

Section 6. Repeal of Conflicting Provisions

That all the provisions as heretofore adopted by the Planning Commission that are in conflict with the provisions of this Resolution are hereby repealed.

Section 7. Severability

That the Planning Commission declares that, should any provision, section, paragraph, sentence or word of this Resolution be rendered or declared invalid by any final court action in a court of competent jurisdiction or by reason of any preemptive legislation, the remaining provisions, sections, paragraphs, sentences or words of this Resolution as hereby adopted shall remain in full force and effect.

Section 8. Effective Date

That this Resolution shall take effect immediately upon the date of adoption.

Section 9. Certification

That the Secretary of the Planning Commission shall certify to the passage of this Resolution.

PASSED AND ADOPTED THIS _____ day of _____, 2021.

CITY OF MORENO VALLEY
PLANNING COMMISSION

Patricia Korzec, Chairperson

ATTEST:

Patty Nevins
Planning Official

APPROVED AS TO FORM:

Steven B. Quintanilla
Interim City Attorney

Exhibits:
Exhibit A: Conditions of Approval PEN19-0059

Attachment: Resolution 2021-18 - Conditional Use Permit [Revision 3] (4405 : FARM MARKET EXPANSION)

Exhibit A

CONDITIONS OF APPROVAL

Attachment: Resolution 2021-18 - Conditional Use Permit [Revision 3] (4405 : FARM MARKET EXPANSION)

CONDITIONS OF APPROVAL

CUP (PEN19-0059)

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CITY OF MORENO VALLEY
 CONDITIONS OF APPROVAL
 Conditional Use Permit (PEN19-0059)

EFFECTIVE DATE:
 EXPIRATION DATE:

COMMUNITY DEVELOPMENT DEPARTMENTPlanning Division

1. Conditional Use Permit PEN19-0059 is approved for development of a vehicle fueling station to include a canopy and four (4) fuel pumps (8 stations) subject to approval of a related application for Master Plot Plan PEN19-0057.
2. This approval shall expire three years after the approval date of this project unless used or extended as provided for by the City of Moreno Valley Municipal Code; otherwise it shall become null and void and of no effect whatsoever. Use means the beginning of substantial construction contemplated by this approval within the three-year period, which is thereafter pursued to completion, or the beginning of substantial utilization contemplated by this approval. (MC 9.02.230)
3. All landscaped areas shall be maintained in a healthy and thriving condition, free from weeds, trash and debris. (MC 9.02.030)
4. All site plans, grading plans, landscape and irrigation plans, fence/wall plans, lighting plans and street improvement plans shall be coordinated for consistency with this approval.
5. A change or modification to the land use or the approved site plans may require a separate approval. Prior to any change or modification, the property owner shall contact the City of Moreno Valley Community Development Department to determine if a separate approval is required.

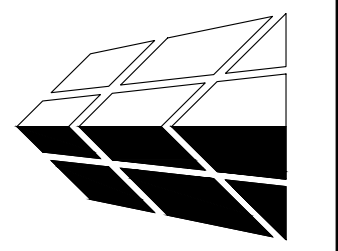
Prior to Building Permit

6. Prior to issuance of any grading permit, all Conditions of Approval and Mitigation Measures shall be printed on the building plans.
7. Conditional Use Permit PEN19-0059 shall be developed and operated in conformance with Municipal Code Section 9.09.200 Service Stations.

FARM MARKET PLAZA

14058 REDLANDS BLVD MORENO VALLEY, CA 92555

HEADY DESIGN INC.
7365 Carnelian St. Suite 233
Rancho Cucamonga, CA 91730
Phone: (909) 581-1202
Email: Hheady@headydesign.com



ABBREVIATIONS	GENERAL NOTES	LEGAL DESCRIPTION	PROJECT DATA	VICINITY MAP																																																			
<p>AB = ANCHOR BOLT A.F.F. = ABOVE FINISH FLOOR AGGR. = AGGREGATE AL. = ALUMINUM APPROX. = APPROXIMATE ARCH. = ARCHITECTURAL ASPH. = ASPHALT</p> <p>BD. = BOARD BITUM. = BITUMINOUS BLDG. = BUILDING BLKG. = BLOCKING BM. = BEAM BOT. = BOTTOM BW = BACK OF WALK</p> <p>CAB. = CABINET CEM. = CEMENT CER. = CERAMIC CI. = CAST IRON CLG. = CEILING CLR. = CLEAR COL. = COLUMN CONC. = CONCRETE CONSTR. = CONSTRUCTION CONT. = CONTINUOUS CTS.K. = COUNTERSUNK CNTR. = COUNTER CTR. = CENTER</p> <p>DEPT. = DEPARTMENT DET. = DETAIL DIA. = DIAMETER DIM. = DIMENSION DISP. = DISPENSER DN. = DOWN DR. = DOOR D.S. = DOWNSPOUT DWG. = DRAWING</p> <p>E = EAST EA. = EACH EL. = ELEVATION ELEC. = ELECTRICAL EQ. = EQUIPMENT EXP. = EXPANSION EXT. = EXTERIOR</p> <p>F.F. = FLOOR FINISH FDN. = FOUNDATION FG. = FINISH GRADE FIN. = FINISH FL. = FLOOR FLASH'G. = FLASHING FLUOR. = FLUORESCENT F.O.C. = FACE OF CONCRETE F.O.C. = FACE OF CURB F.O.F. = FACE OF FINISH F.O.S. = FACE OF STUDS F.S. = FLOOR SINK FT. = FOOT OR FEET FTG. = FOOTING FURR. = FURRING FUT. = FUTURE</p> <p>GL. = GLASS GR. = GRADE GB = GRADE BREAK GSM = GALVANIZED SHEET METAL</p> <p>GYP. = GYPSUM GYP.BD. = GYPSUM BOARD</p> <p>H.B. = HOSE BIBB HDWE. = HARDWARE H.M. = HOLLOW METAL HORIZ. = HORIZONTAL HR. = HOUR HGT. = HEIGHT</p> <p>IE = INVERT ELEVATION I.D. = INSIDE DIAMETER INSUL. = INSULATION INT. = INTERIOR</p>	<p>JT. = JOINT LAM. = LAMINATE LAV. = LAVATORY LIP = EDGE OF SWALE OR GUTTER</p> <p>MAY MECH. = MAXIMUM MECHANICAL MEMB. = MEMBRANE MFR. = MANUFACTURER MIN. = MINIMUM MISC. = MISCELLANEOUS M.O. = MASONRY OPENING MTD. = MOUNTED MUL. = MULLION</p> <p>N. = NORTH NIC = NOT IN CONTRACT NO OR # = NUMBER NOM. = NOMINAL NTS = NOT TO SCALE</p> <p>O.C. = ON CENTER O.D. = OUTSIDE DIAMETER MECH. = MECHANICAL OPP. = OPPOSITE</p> <p>PB = LEVEL PAVEMENT AT DISPENSER PIT BOX PL. = PLATE P.LAM. = PLASTIC LAMINATE PLYWD. = PLYWOOD P.O.C. = POINT OF CURVATURE P.O.S. = POINT OF SALE</p> <p>R OR RAD. = RADIUS R.D. = ROOF DRAIN REF. = REFERENCE REINF. = REINFORCED REQ'D = REQUIRED RM. = ROOM R.O. = ROUGH OPENING R.O.W. = RIGHT OF WAY</p> <p>SCHED. = SCHEDULE SECT. = SECTION SHT. = SHEET SIM. = SIMILAR SPEC. = SPECIFICATION SQ. = SQUARE S.ST. = STAINLESS STEEL STD. = STANDARD STL. = STEEL STOR. = STORAGE STR. = STRUCTURAL SYM. = SYMMETRICAL</p> <p>T.C. = TOP OF CURB TG = TOP OF GRATE T&G. = TONGUE & GROOVE THK. = THICK TI = TOP OF ISLAND T.O. = TOP OF TOW = TOP OF WALL TP = TOP OF PAVEMENT TS = TOP OF SLAB TW = TOP OF WALK TYP. = TYPICAL</p> <p>UNF. = UNFINISHED UON = UNLESS OTHERWISE NOTED</p> <p>VERT. = VERTICAL</p>	<ol style="list-style-type: none"> IN THE EVENT OF DISCREPANCIES BETWEEN THE DRAWINGS, SPECIFICATIONS, OR SCOPE OF WORK SUMMARY IN THIS PACKAGE, NOTIFY HEADY DESIGN IMMEDIATELY. THE CONTRACTOR IS RESPONSIBLE TO SEE THAT WORK IN FIELD IS DONE IN ACCORDANCE WITH ALL CURRENT APPLICABLE NATIONAL, STATE & LOCAL CODES, ORDINANCES & REQUIREMENTS BY GOVERNING AGENCIES, WHETHER OR NOT SAID CODES, ORDINANCES REQUIREMENTS, ETC. ARE SPECIFICALLY SHOWN ON DRAWINGS AND/OR CALLED FOR IN SPECIFICATIONS. THE CONTRACTOR SHALL PROTECT ALL EXISTING ITEMS AND FACILITIES TO REMAIN THROUGHOUT CONSTRUCTION. CONTRACTOR SHALL REPAIR AND/OR REPLACE, AT CONTRACTOR'S EXPENSE, ANY EXISTING ITEMS AND FACILITIES TO REMAIN THAT ARE DAMAGED BY THE CONTRACTOR'S OPERATIONS, TO THE SATISFACTION OF HEADY DESIGN. UNLESS DELIVERY IS BY OWNER TO THE JOB SITE, CONTRACTOR SHALL DELIVER SUCH EQUIPMENT, DAMAGE-FREE TO THE JOB SITE. PRIOR TO EXCAVATION, DETERMINE AND VERIFY LOCATION OF UTILITY SERVICES IN ALL AREAS TO BE EXCAVATED. THE CONTRACTOR SHALL COMPLY WITH ALL PERTINENT LAWS, CODES, REGULATIONS, CBC, GOVERNING AGENCIES & MANUFACTURER SPECIFICATIONS, UNLESS GREATER REQUIREMENTS ARE INDICATED, AND/OR ARE NECESSARY FOR THE SAFETY OF THE PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING JURISDICTIONS AS REQUIRED FOR INSPECTIONS. THE CONTRACTOR SHALL PROVIDE HEADY DESIGN WITH A CONSTRUCTION SCHEDULE PRIOR TO STARTING THE WORK, A QUALIFIED JOB SUPERINTENDENT THROUGHOUT THE WORK, PHOTOS SHOWING, ELECTRICAL TRENCHES PRIOR TO BACKFILL, AND RECORD DRAWINGS OF ALL UNDERGROUND CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE BARRICADES AND SAFETY SIGNS PER OSHA REQUIREMENTS. THE CONTRACTOR IS RESPONSIBLE FOR OVERALL CONSTRUCTION SITE CLEANLINESS, INCLUDING PROVISION OF A DEBRIS BOX WITH WEEKLY SERVICING, REMOVAL OF ALL CONTRACTOR/SUBCONTRACTOR REFUSE AND DEBRIS, AND SWEEPING OF THE ENTIRE YARD AREA AT THE COMPLETION OF THE WORK UNLESS STATED OTHERWISE IN THE SCOPE OF WORK SUMMARY, ALL OTHER PROCEDURES, TESTING, MATERIALS AND EQUIPMENT SHOWN ON THE PLANS SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR. DRAWINGS SHOULD NOT BE SCALED. N.T.S. INDICATES "NOT TO SCALE" AND THE LISTED DIMENSION SHALL GOVERN. EACH CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIR OF DAMAGE TO THE WORK OF OTHER TRADES CAUSED BY HIS OPERATIONS. THE NATURE OF SUCH REPAIR WORK MUST RECEIVE THE PRIOR APPROVAL OF THE OWNER. CONSTRUCTION MATERIAL, ASSEMBLIES AND PROCEDURES ARE TO LOCALLY ADOPTED BUILDING CODES AND SUPPLEMENTARY ORDINANCES. WHEN A CONFLICT OCCURS BETWEEN SUCH LOCAL CODE AND INFORMATION SHOWN ON THE PLANS, CONSULT HEADY DESIGN & ASSOCIATES FOR RESOLUTION PRIOR TO COMMENCING WORK. THE CONTRACTOR SHALL NOTIFY HEADY DESIGN IF SITE CONDITIONS OR DIMENSIONS DISAGREE WITH INFORMATION SHOWN ON THE DRAWINGS. WORK IS NOT TO PROCEED UNTIL SUCH DIFFERENCES ARE RESOLVED. ALL EXISTING STRUCTURES, WALLS, TRIM, FASCIA, DOORS, DOWNSPOUTS, ETC., ARE TO BE REPAIRED AND REPAINTED AS NOTED. DO NOT USE THE BUILDING PERMIT SET FOR CONSTRUCTION OR FIELD REFERENCE. THE PERMIT SET GENERALLY LACKS CERTAIN DRAWINGS AND SPECIFICATIONS, WHICH ARE IN THE BID AND CONSTRUCTION SETS IN ADDITION TO REVISIONS MADE AFTER THE PERMIT PROCESS. FOR CONSTRUCTION AND FIELD REFERENCE, CONTRACTOR SHALL USE ONLY THE SET, WHICH IS CLEARLY SIGNED AND DATED "ISSUED FOR CONSTRUCTION". THE APPROVED PERMIT SET SHALL BE KEPT ON SITE. 	<p>PROJECT OWNER: PARMJIT SINGH 14058 REDLANDS BLVD MORENO VALLEY, CA 91730 951-247-3853</p> <p>DESIGN FIRM: HEADY DESIGN INC. 7365 CARNELIAN ST. SUITE 239 RANCHO CUCAMONGA, CA 91730 909-581-1202</p> <p>PROJECT ADDRESS: 14058 REDLANDS BLVD MORENO VALLEY, CA 92555</p> <p>NATURE OF BUSINESS: COMMERCIAL MIXED USE.</p> <p>APN#: 478-430-031 478-430-001</p> <p>LEGAL JURISDICTION: CITY OF MORENO VALLEY</p> <p>PLANNING ZONE: VILLAGE COMMERCIAL</p> <p>LAND USE: COMMERCIAL DEVELOPMENT DISTRICTS</p> <p>SITE AREA: 70,894 SF.</p> <p>TOTAL BUILDING AREAS: 13,250 SF.</p> <table border="1"> <thead> <tr> <th></th> <th>SIZE</th> <th>CONST. TYPE</th> </tr> </thead> <tbody> <tr> <td>EXISTING FARM MARKET:</td> <td>4,924 SF.</td> <td>TYPE V-B</td> </tr> <tr> <td>CANOPY AREA:</td> <td>2,500 SF.</td> <td>TYPE II-B</td> </tr> <tr> <td>RESTAURANT:</td> <td>2,350 SF.</td> <td>TYPE V-B</td> </tr> <tr> <td>COMMERCIAL SPACE:</td> <td>1,500 SF.</td> <td>TYPE V-B</td> </tr> </tbody> </table> <p>PARKING:</p> <table border="1"> <thead> <tr> <th></th> <th>REQUIRED</th> <th>PROVIDED</th> </tr> </thead> <tbody> <tr> <td>EXISTING COMMERCIAL</td> <td>21.8 SPACES</td> <td>22 SPACES</td> </tr> <tr> <td>4,924 S.F./225 S.F.=21.8</td> <td></td> <td></td> </tr> <tr> <td>PROP. COMMERCIAL</td> <td>6.7 SPACES</td> <td>7 SPACES</td> </tr> <tr> <td>1,500 S.F./225 = 6.7</td> <td></td> <td></td> </tr> <tr> <td>PROP. RESTAURANT</td> <td>23.5 SPACES</td> <td>23 SPACES</td> </tr> <tr> <td>2,350 S.F./100 S.F.=23.5</td> <td></td> <td></td> </tr> <tr> <td>PROP. 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			<p>LEGEND</p> <p>DETAIL NUMBER (X) →</p> <p>SHEET NUMBER (X) →</p> <p>SECTION NUMBER (X) →</p> <p>SHEET NUMBER (X) →</p> <p>DETAIL NUMBER (A, B, C) →</p> <p>INTERIOR WALL ELEVATION (X) →</p> <p>SHEET NUMBER (X) →</p> <p>DOOR/WINDOW # (1) →</p> <p>KEY NOTE (X) →</p> <p>ROOM ID. # (X) →</p>	<p>DRAWING INDEX</p> <p>CS1 COVER SHEET</p> <p>SITE WORK</p> <p>SP1 PROPOSED SITE PLAN</p> <p>LANDSCAPE</p> <p>L-1 CONCEPTUAL LANDSCAPE PLAN</p> <p>L-1c COLORED CONCEPTUAL LANDSCAPE</p> <p>ARCHITECTURAL</p> <p>A01.0 PROPOSED FLOOR PLAN</p> <p>A01.1 PROPOSED CANOPY PLAN & ELEVATIONS</p> <p>A01.1c PROPOSED COLORED CANOPY PLAN & ELEVATIONS</p> <p>A03.0 EXISTING EXTERIOR ELEVATIONS</p> <p>A03.1 PROPOSED EXTERIOR ELEVATIONS</p> <p>A03.1c PROPOSED COLORED EXTERIOR ELEVATIONS</p> <p>A03.2 PROPOSED EXTERIOR ELEVATIONS</p> <p>A03.2c PROPOSED COLORED EXTERIOR ELEVATIONS</p> <p>A04.0 PROPOSED ROOF PLAN</p> <p>A05.0 PROPOSED REFLECTED CEILING PLAN</p> <p>PS1 PHOTO SHEET</p> <p>MS1 MATERIAL SAMPLE BOARD</p>																																																			
			<p>UNDER SEPARATE PERMIT</p> <ol style="list-style-type: none"> PROPOSED SIGNAGE 																																																				

FARM MARKET PLAZA
14058 REDLANDS BLVD
MORENO VALLEY, CA 92555
COVER SHEET

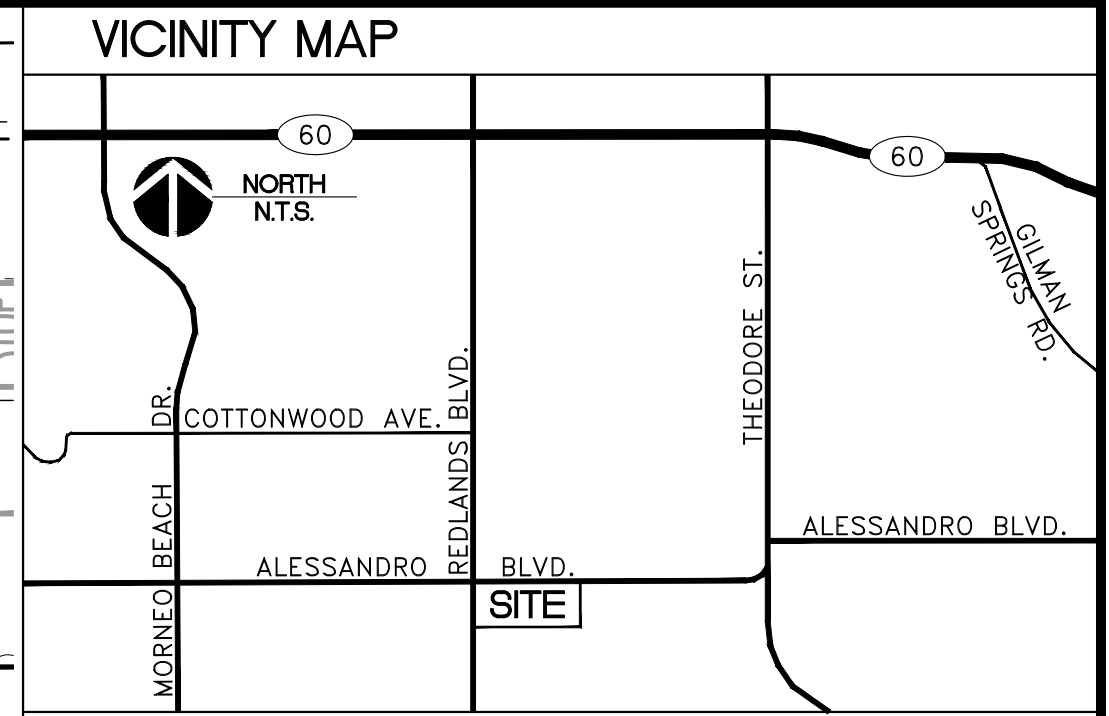
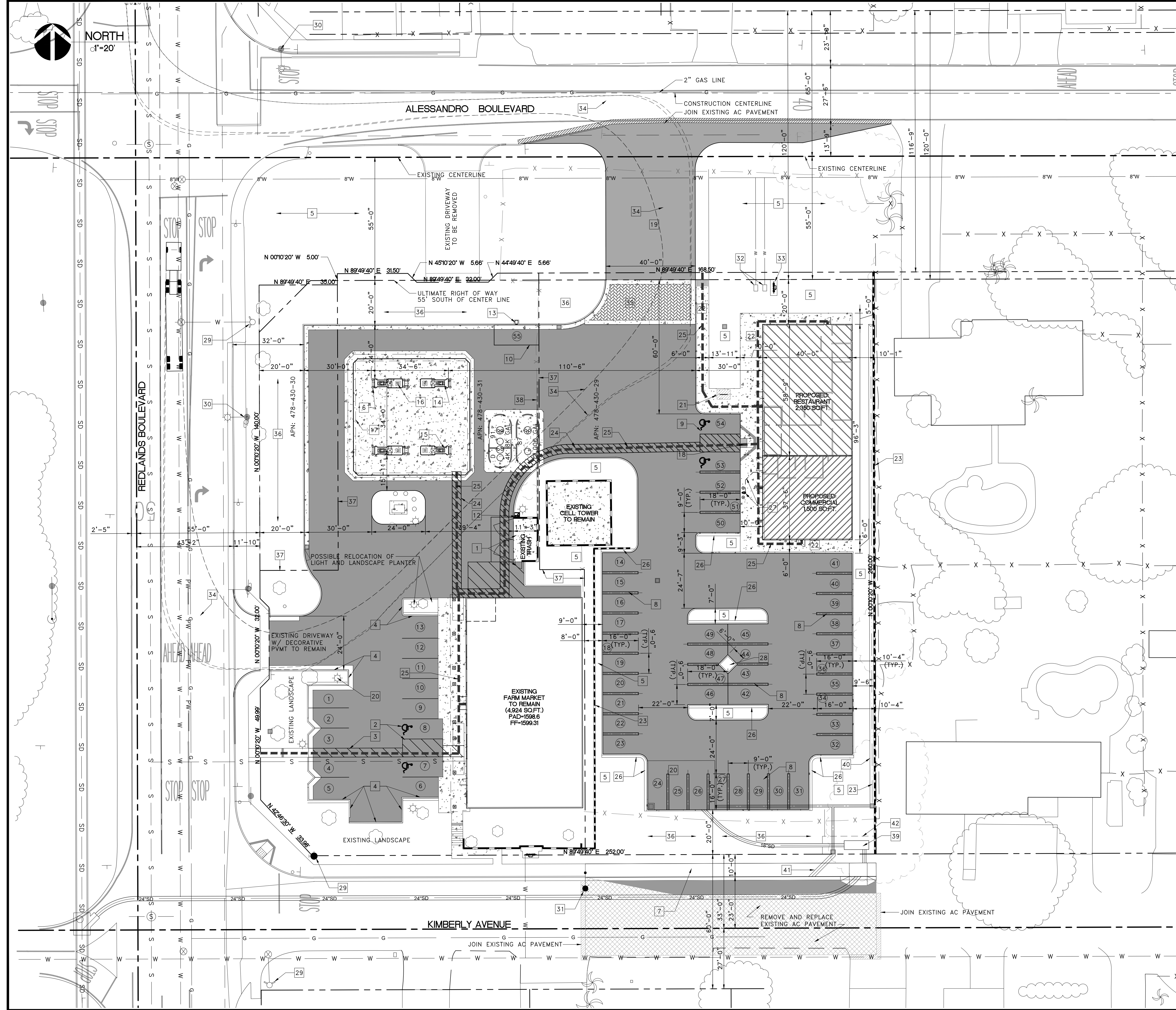
Revision Description	Date

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JOB NO: FMG-001
DRAWN BY: LA/KA
DATE: 4/26/2021
SCALE: AS SHOWN

DRAWING:
CS1

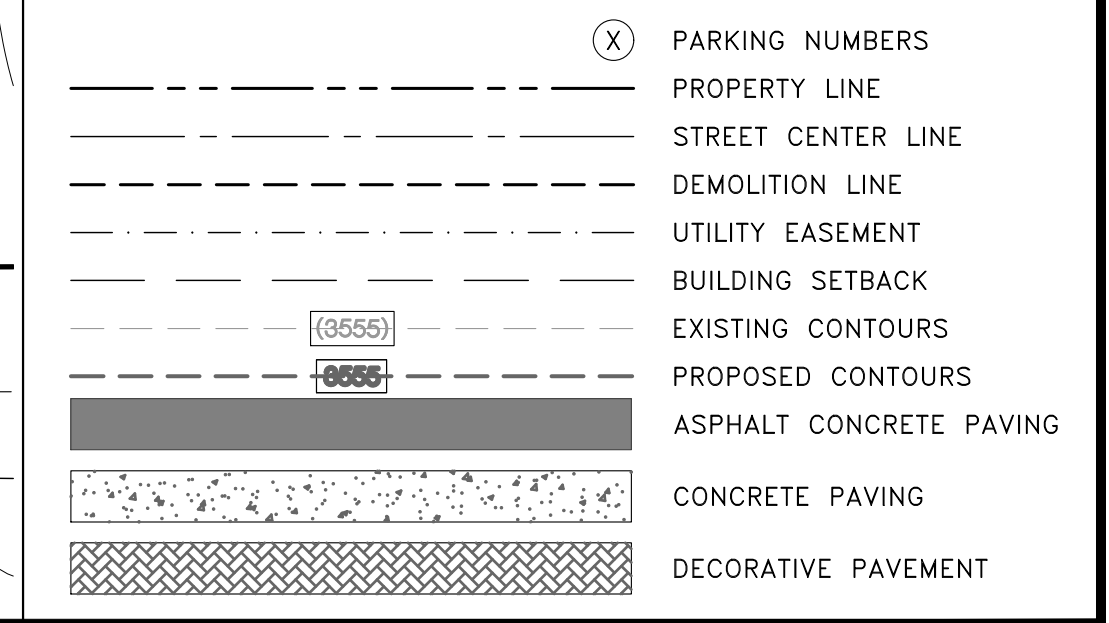
Drawn by: LA/KA, Project: FMG-001 - Moreno Valley Shopping Centers, Drawing: FMG-001_CS1_COVER_SHEET, Date: 4/26/2021, User: LA/KA, Last Modified: Nov 16, 2021, 11:28



SITE PLAN NOTES

- 1 EXISTING ADA ACCESSIBLE TRASH ENCLOSURE 20'-0" X 11'-0" WITH 3' MAN DOOR ON SOUTH SIDE.
 - 2 EXISTING ADA ACCESSIBLE PARKING STALL WITH ADA SIGNAGE.
 - 3 EXISTING ADA PATH OF TRAVEL.
 - 4 EXISTING 6" CURB AND GUTTER.
 - 5 PROPOSED LANDSCAPE WITH NEW 6" CONCRETE CURBS.
 - 6 PROPOSED 6" BOLLARD. (TYPICAL OF 9)
 - 7 PROPOSED SIDEWALK WITH CURB & GUTTER.
 - 8 PROPOSED 9' X 16' (2' NOSE OVER) PARKING STALLS. (TYP. OF 39)
 - 9 PROPOSED 9' X 18' PARKING STALLS. (TYP. OF 15)
 - 10 PROPOSED 9' X 20' PARKING STALLS. (TYP. OF 1)
 - 11 PROPOSED YARD LIGHTS. (TYP. OF 6)
 - 12 PROPOSED VENT RISERS.
 - 13 PROPOSED AIR & WATER.
 - 14 PROPOSED 3+1 DISPENSER WITH DIESEL.
 - 15 PROPOSED 3+1 DISPENSER WITH E-85.
 - 16 PROPOSED CANOPY COLUMNS.
 - 17 PROPOSED 50'-0" X 50'-0" CANOPY.
 - 18 PROPOSED ADA COMPLIANT CONCRETE RAMP.
 - 19 PROPOSED 40'-0" WIDE DRIVE WAY.
 - 20 PROPOSED UNDERGROUND STORM WATER VAULT (STORM TRAP) VMP=2,550 CF.
 - 21 PROPOSED BICYCLE PARKING/RACK WITH 2 BIKE MIN. CAPACITY.
 - 22 PROPOSED CONCRETE SIDEWALK
 - 23 PROPOSED CMU RETAINING WALL PER SEPARATE PERMIT, SEE CIVIL PLANS.
 - 24 PROPOSED STRIPED ADA PATH OF TRAVEL.
 - 25 PROPOSED SITE ACCESSIBILITY PATH OF TRAVEL AT DASHED LINE
 - 26 PROPOSED 12" WIDE CONCRETE STEP OUT.
 - 27 PROPOSED EV CHARGING STATION AND CONDUIT, INSTALL DUAL-PORT STATION BY: CHARGE POINT.
 - 28 PROPOSED DECORATIVE PLANTER WITH 5' MIN INTERIOR DIMENSION
 - 29 EXISTING FIRE HYDRANT
 - 30 EXISTING POWER POLE WITH STREET LIGHT
 - 31 PROPOSED STREET LIGHT (TYP. OF _)
 - 32 PROPOSED WATER METERS, SEE CIVIL PLANS
 - 33 PROPOSED DOUBLE DETECTOR CHECK ASSEMBLY, SEE CIVIL PLANS
 - 34 PROPOSED PATH OF REFUELING TRUCK ON/OFF THE SITE
 - 35 PROPOSED DECORATIVE PAVING AT NEW DRIVE APPROACH (TO MATCH EXISTING DRIVE APPROACH)
 - 36 PROPOSED LANDSCAPING WITH 30" HIGH SHRUB HEDGE TO BLOCK VEHICLE HEADLIGHTS
 - 37 EXISTING LOT LINE
 - 38 EXISTING BLOCK WALL TO BE REMOVED
 - 39 INSTALL MODULAR WETLAND SYSTEM BY: "BIOCLEAR"
 - 40 INSTALL 24" CONCRETE V-DITCH, SEE CIVIL PLANS
 - 41 CONSTRUCT REVERSE PARKWAY DRAIN PER CITY STD. MWSI-150A-0
 - 42 DASHED LINE OF PROP. MAINTENANCE EASEMENT AROUND INLET AND MWS
- PARKING NOTE: ALL PARKING STALLS TO BE DOUBLE STRIPED PER CITY STANDARDS

LEGEND



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FARM MARKET PLAZA
 14058 REDLANDS BLVD
 MORENO VALLEY, CA 92555

PROPOSED SITE PLAN

Rev. #	Date	Revision Description

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JOB NO: FMG-001
DRAWN BY: BAM
DATE: 4/26/2021
SCALE: 1"=20'

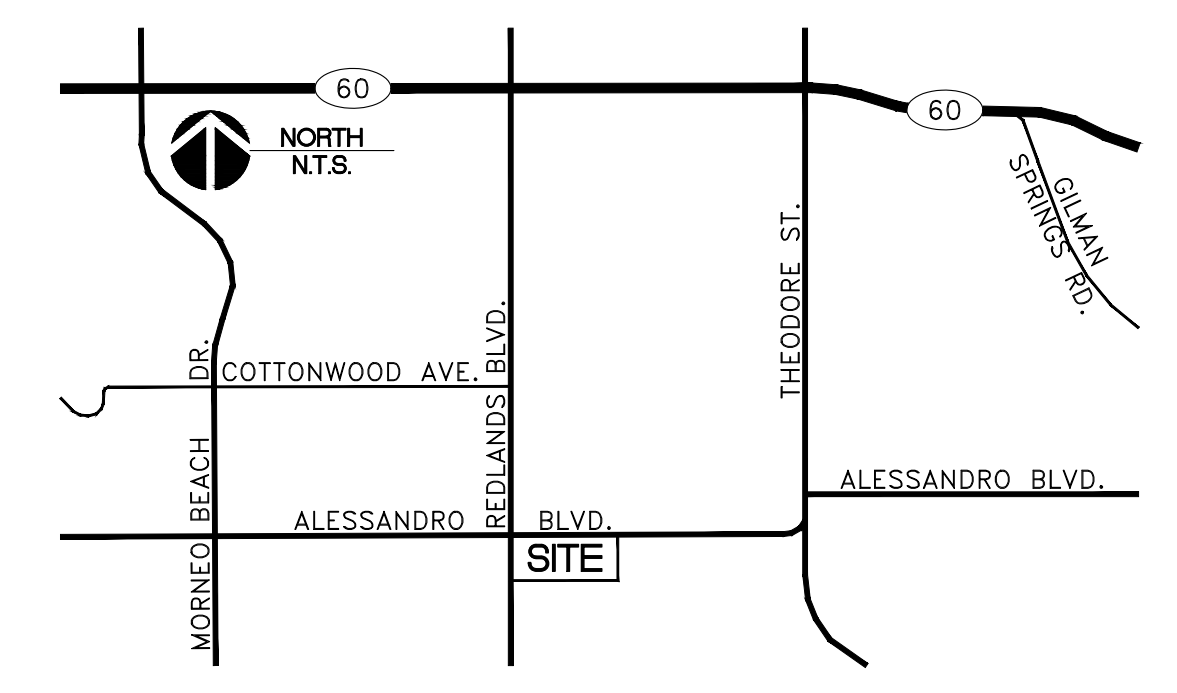
DRAWING: SP1

Checked: JLV/MS PROJ:021519MG-001 - Moreno Valley Shopping Centers Driveway/Prop-001_SPT_SITE_Plan/Rev.001_SPT_SITE_Plan
 Date: 4/26/2021
 User: JLV/MS
 Last Modified: Dec 01, 2021 - 12:31

Drawing: S:\V\04 PROJ\2023\1905-001 - Berman Valley (Design)\Landscape\1905-001 11-CONCEPTUAL LANDSCAPE PLAN-2.dwg, 11
 User: LAKIND
 Unit Modifier: Apr 26, 21 = 11:15



VICINITY MAP



PROPOSED PLANT LEGEND

SYMBOL	BOTANICAL NAME	QTY.	CONTAINER SIZE	WATER USE
TREES:				
	AFROCARPUS GRACILIOR	6	15 GALLON	MODERATE
	FERN PINE		35' x 20'	
	BRACHYCHITON POPULNEUS	10	24" BOX	LOW
	BOTTLE TREE		35' x 30'	
	CHAMAEROPS HUMILIS	14	15 GALLON	LOW
	MEDITERRANEAN FAN PALM		10' x 8'	
	KOELRUTERIA BIPINNATA	7	36" BOX	LOW
	CHINESE FLAME TREE		35' x 40'	
	RHUS LANCEA	9	24" BOX	LOW
	AFRICAN SUMAC		35' x 30'	
SHRUBS:				
	CALAMAGROSTIS 'KARL FOERSTER'	14	5 GALLON	LOW
	FEATHER REED GRASS		3' x 3'	
	CALLISTEMON 'LITTLE JOHN'	79	5 GALLON	LOW
	COMPACT BOTTLE BRUSH		3' x 3'	
	CEANOTHUS 'DARK STAR'	12	5 GALLON	LOW
	DARK STAR CEANOTHUS		5' x 6"	
	DIETES GRANDIFLORA	77	5 GALLON	MODERATE
	FORTNIGHT LILY		4' x 3'	
	ELAEOGNUS P. 'FRUITLANDII'	89	5 GALLON	LOW
	SILVERBERRY		4' x 3'	
	GREVILLEA 'CANBERRA GEM'	80	5 GALLON	LOW
	NCN		4' x 4"	
	HESPERALOE PARVIFLORA	94	5 GALLON	LOW
	RED YUCCA		3' x 3'	
	LIGUSTRUM 'TEXANUM'	88	5 GALLON	MODERATE
	TEXAS PRIVET		3' x 3'	
	MUHLENBERGIA CAPILLARIS	123	5 GALLON	LOW
	PINK MUHLY		2' x 2'	
	SALVIA L. 'POINT SAL SPREADER'	14	5 GALLON	LOW
	PURPLE SAGE		3' x 6"	
VINES:				
	MACFADYENA UNGUIS-CATI	10	5 GALLON	LOW
	CATS CLAW VINE			
GROUNDCOVER:				
	BACCHARIS P. 'PIGEON POINT'	1	GALLON	LOW
	PROSTATE COYOTE BRUSH		4' O.C.	
	GAZANIA R. 'LEUCOLANEA'	FLATS		MODERATE
	TRAILING GAZANIA		12" O.C.	
	(E) LANDSCAPE			LOW

NOTES:
 PLANTING AREAS SHALL BE MULCHED WITH A THREE INCH (3") MINIMUM LAYER OF ORGANIC WOOD MULCH.
 ROOT BARRIERS ARE REQUIRED WHEN TREE IS WITHIN 5' OF PAVING/CURB.
 IRRIGATION SHALL UTILIZE DRIPLINE AND AN AUTOMATIC WEATHER BASED CONTROLLER.
 REDUCE VISIBILITY OF WATER METERS, BACKFLOW PREVENTORS AND UTILITY CABINETS WITH LANDSCAPING.

PARKING SHADE CALCULATION:
 TOTAL NEW PARKING AREA = 6,137 SQ. FT.
 TOTAL NEW PARKING AREA SHADED = 4,255 SQ. FT. (69%)

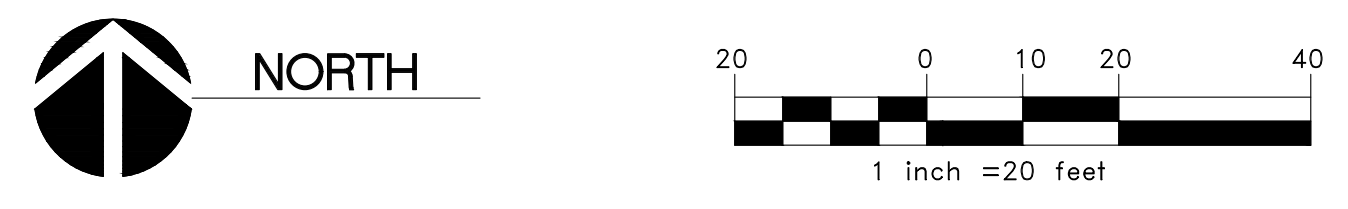
MAXIMUM APPLIED WATER ALLOWANCE:
 (50.5)(0.62)(0.45 x 22,265) = 313,702.7 GPY
 TOTAL NEW LANDSCAPE AREA = 22,265 SQ. FT.
 TOTAL EXISTING LANDSCAPE AREA = 4,574 SQ. FT.
 TOTAL LANDSCAPE AREA = 26,839 SQ. FT.

ESTIMATED TOTAL WATER USE
 HZ1 MOD (50.5)(0.62)(.4/.81 x 7,829) = 120,111.7 GPY
 HZ2 LOW (50.5)(0.62)(.2/.81 x 14,436) = 112,997.8 GPY
 TOTAL = 233,109.5 GPY

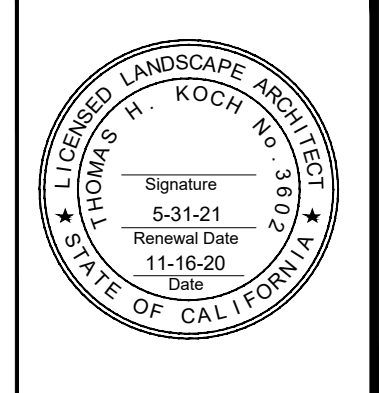
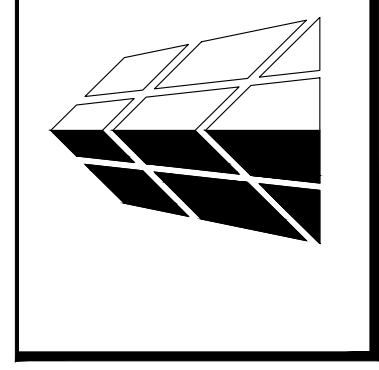
THOMAS H. KOCH
 LANDSCAPE ARCHITECT

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 14058 REDLANDS BLVD
 MORENO VALLEY, CA 92555

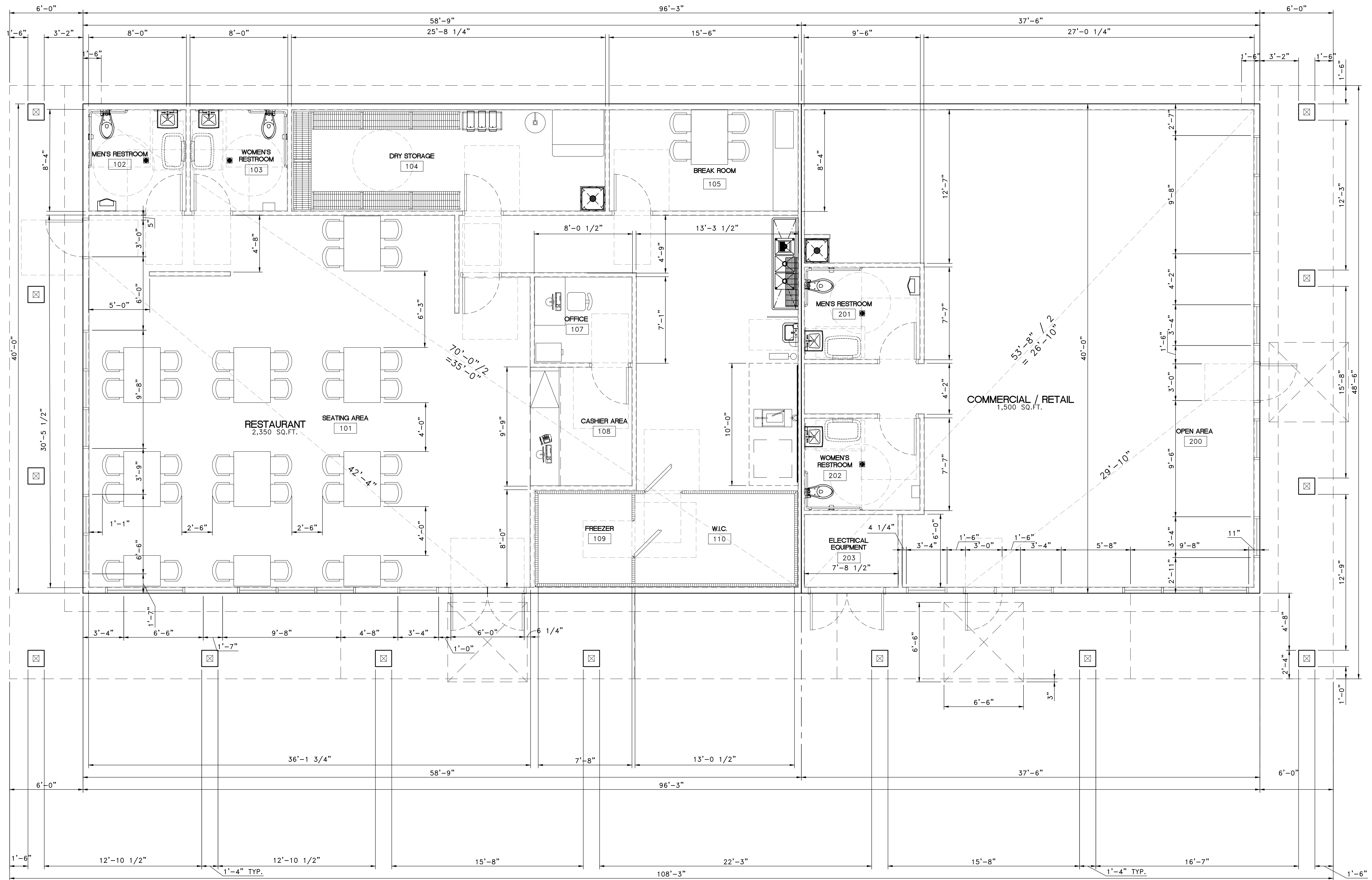
COLORED CONCEPTUAL LANDSCAPE PLAN

Rev. #	Date	Revision Description

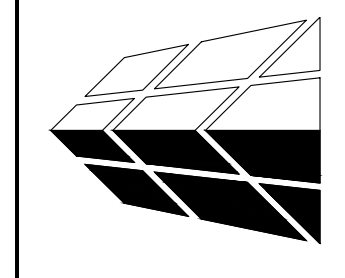
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JOB NO: FMG-001
DRAWN BY: SR/LA
DATE: 4/26/21
SCALE: 1"=20'

DRAWING:
L-1c



HEADY DESIGN INC.
 7365 Camelian St. Suite 233
 Rancho Cucamonga, CA 91730
 Phone: (909) 581-1202
 Email: Hheady@headydesign.com



FARM MARKET PLAZA
 14058 REDLANDS BLVD
 MORENO VALLEY, CA 92555

PROPOSED FLOOR PLAN

Rev. #	Date	Revision Description

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JOB NO: FMG-001
 DRAWN BY: BAM
 DATE: 4/26/2021
 SCALE: 1/4"=1'-0"

DRAWING:
A01.0

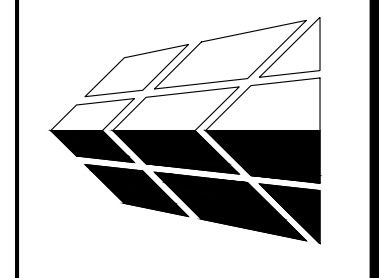
Drawing: A01.0 - PROPOSED FLOOR PLAN - Farm Market Plaza - 14058 Redlands Blvd - Moreno Valley - 4/26/2021
 User: JAM/SD
 Unit Modified: Apr 26, 21 - 11:42



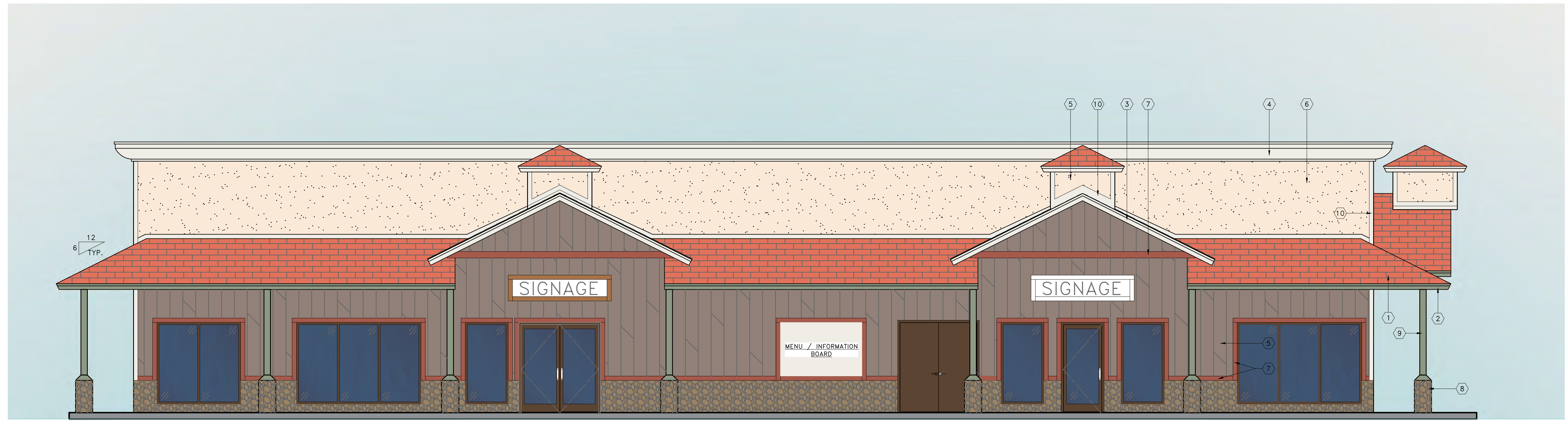
FINISH SCHEDULE

SYM	DESCRIPTION	COLOR	COMMENTS
(1)	ARROWLINE SHAKE STEEL ROOFING	CLASSIC RED	EDCO PRODUCTS
(2)	2x8 ROOF FASCIA	LINDEN SPEAR	DUNN-EDWARDS - BASE NUMBER: DE6285
(3)	2x8 ROOF BARGEBOARD	WARM WHITE	DUNN-EDWARDS - BASE NUMBER: DEW380
(4)	HIGH DENSITY FOAM CORNICE	WARM WHITE	DUNN-EDWARDS - BASE NUMBER: DEW380
(5)	BATTEN BOARD SIDING	OPAQUE STAIN	MANUFACTURER: GEORGIA PACIFIC SERIES: PLYTANIUM SIDING NOTE: REVERSE BOARD BATTEN W/12" O.C. SPACING
(6)	BUILDING WALLS - STUCCO	VIEJO	LA HABRA - BASE NUMBER: X-475 (47) TEXTURE: 1/20 SAND FLOAT
(7)	4x WOOD TRIM	SANTA FE	DUNN-EDWARDS - BASE NUMBER: DET458
(8)	DECORATIVE STONE VANEER	RENO BLEND	CORONADO STONE - SERIES: RIVER ROCK
(9)	6"x 6" WOOD POST	LINDEN SPEAR	DUNN-EDWARDS - BASE NUMBER: DE6285
(10)	STUCCO EXPANSION JOINT	POPPY CREPE	DUNN-EDWARDS - BASE NUMBER: DEW308

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1 NORTH ELEVATION



2 WEST ELEVATION

FARM MARKET PLAZA
 14058 REDLANDS BLVD
 MORENO VALLEY, CA 92555
**PROPOSED EXTERIOR
 COLORED ELEVATIONS**

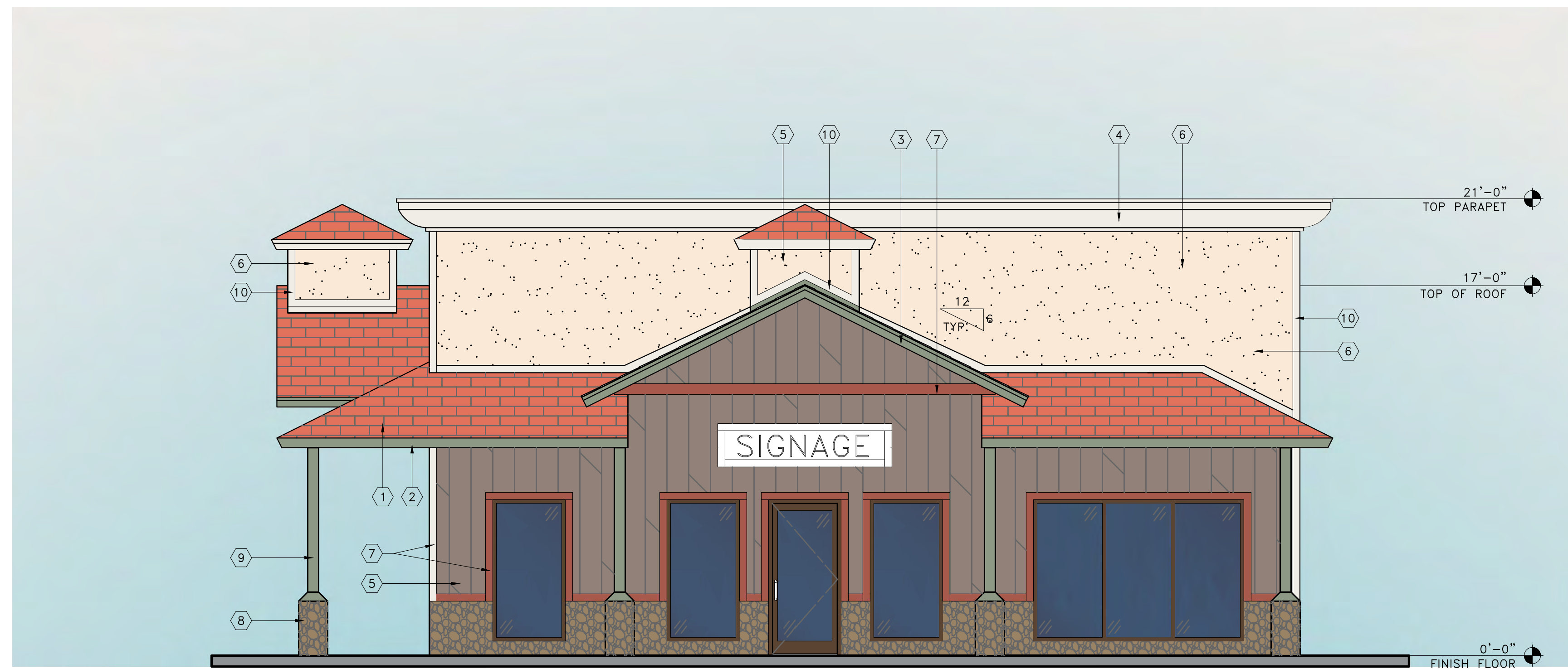
Rev. #	Date	Revision Description

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JOB NO: FMG-001
 DRAWN BY: KA
 DATE: 4/26/2021
 SCALE: 1/4"=1'-0"

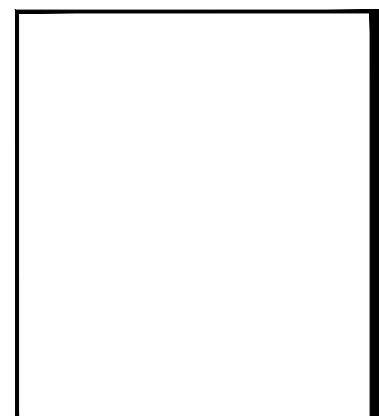
DRAWING:
A03.1c

Drawing: A:\NAI_PROJECTS\2021\001_A03.1c_FARM MARKET PLAZA COLORED ELEVATIONS.dwg
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 Last Modified: Apr 26, 2021 10:45

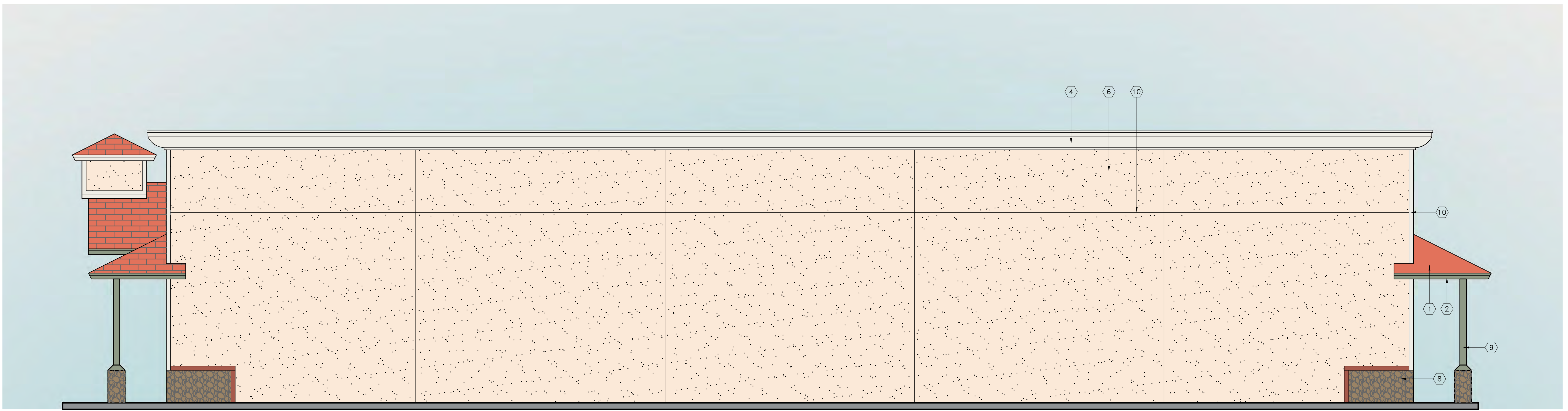


FINISH SCHEDULE			
SYM	DESCRIPTION	COLOR	COMMENTS
(1)	ARROWLINE SHAKE STEEL ROOFING	CLASSIC RED	EDCO PRODUCTS
(2)	2x8 ROOF FASCIA	LINDEN SPEAR	DUNN-EDWARDS - BASE NUMBER: DE6285
(3)	2x8 ROOF BARGEBOARD	WARM WHITE	DUNN-EDWARDS - BASE NUMBER: DEW380
(4)	HIGH DENSITY FOAM CORNICE	WARM WHITE	DUNN-EDWARDS - BASE NUMBER: DEW380
(5)	BATTEN BOARD SIDING	OPAQUE STAIN	MANUFACTURER: GEORGIA PACIFIC SERIES: PLYTANIUM SIDING NOTE: REVERSE BOARD BATTEN W/12" O.C. SPACING
(6)	BUILDING WALLS - STUCCO	VIEJO	LA HABRA - BASE NUMBER: X-475 (47) TEXTURE: 1/20 SAND FLOAT
(7)	4x WOOD TRIM	SANTA FE	DUNN-EDWARDS - BASE NUMBER: DET458
(8)	DECORATIVE STONE VANEER	RENO BLEND	CORONADO STONE - SERIES: RIVER ROCK
(9)	6"x 6" WOOD POST	LINDEN SPEAR	DUNN-EDWARDS - BASE NUMBER: DE6285
(10)	STUCCO EXPANSION JOINT	POPPY CREPE	DUNN-EDWARDS - BASE NUMBER: DEW308

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 Email: Hheady@headydesign.com



3 SOUTH ELEVATION



4 EAST ELEVATION

FARM MARKET PLAZA
 14058 REDLANDS BLVD
 MORENO VALLEY, CA 92555

**PROPOSED EXTERIOR
 COLORED ELEVATIONS**

Rev. #	Date	Revision Description

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JOB NO: FMG-001
 DRAWN BY: KA
 DATE: 4/26/2021
 SCALE: 1/4"=1'-0"

DRAWING:
A03.2c

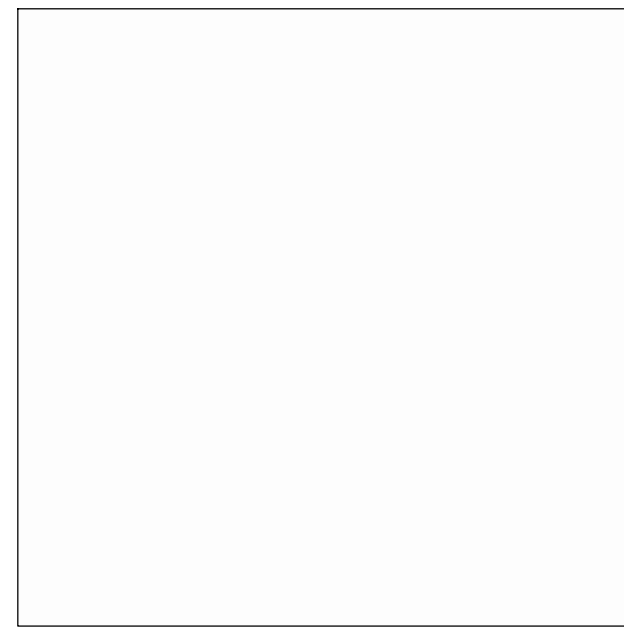
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 User: KAYL
 Last Modified: Apr 26, 21 - 10:43

FARM MARKET PLAZA

14058 REDLANDS BLVD.
MORENO VALLEY, CA 92555

BUILDING MATERIALS

PAINTS



COLOR: WARM WHITE
MANUFACTURER: DUNN-EDWARDS
BASE NUMBER: DEW380

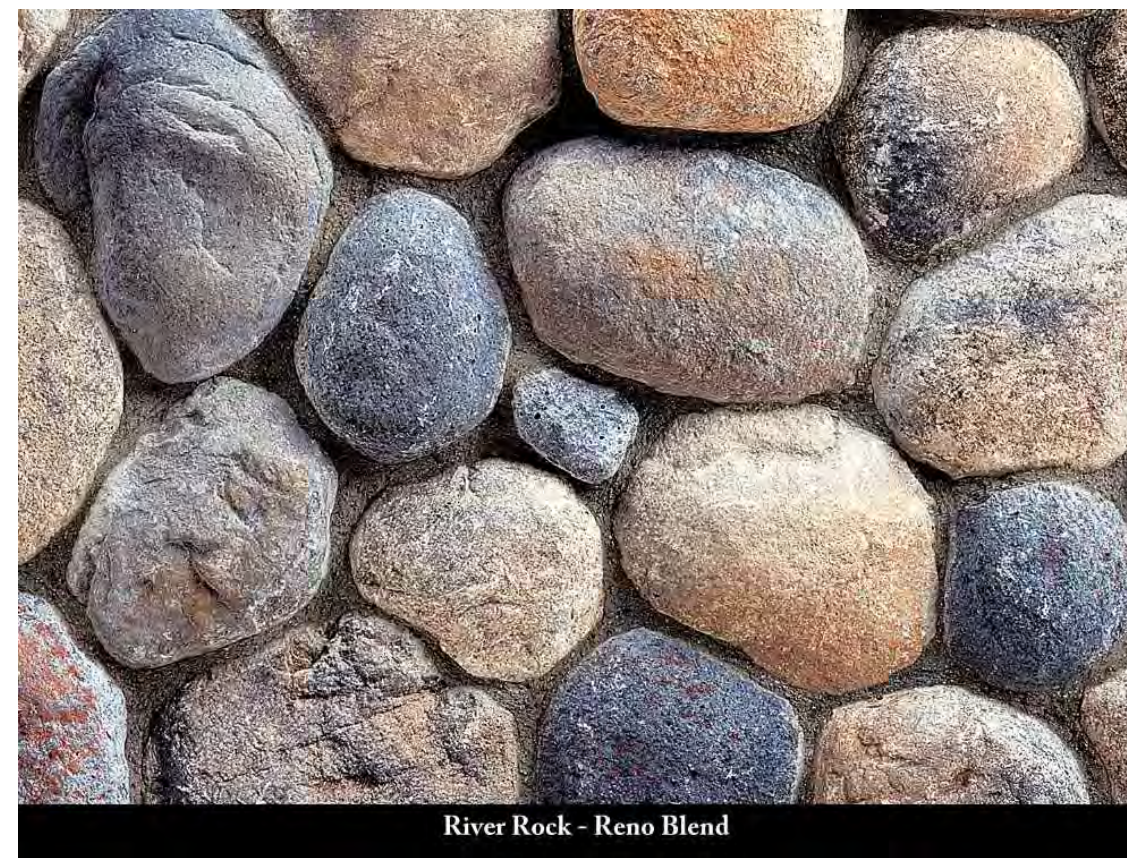


COLOR: SANTA FE SUNSET
MANUFACTURER: DUNN-EDWARDS
BASE NUMBER: DET458



COLOR: LINDEN SPEAR
MANUFACTURER: DUNN-EDWARDS
BASE NUMBER: DE6285

STONE VENEER



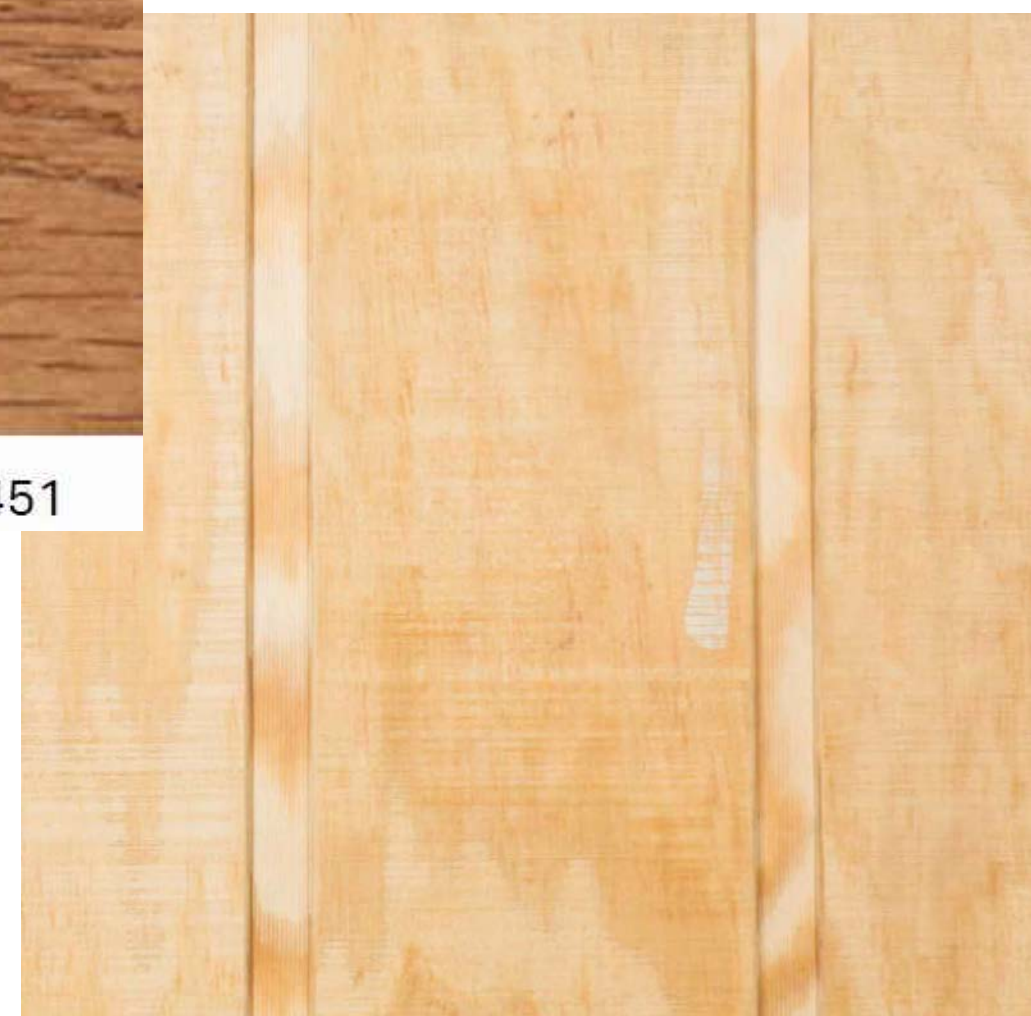
COLOR: RENO BLEND
SERIES: RIVER ROCK
MANUFACTURER: CORONADO STONE
WEBSITE: coronado.com

SIDING + STAIN



CANDLEWOOD MW 451

STAIN COLOR: CANDLEWOOD
MANUFACTURER: WINWAX
SERIES: PERFORMANCE SERIES
TINTABLE WOOD STAIN



COLOR: OPAQUE STAIN TO SHOW WOOD GRAIN
TEXTURE: ROUGH SAWN
MANUFACTURER: GEORGIA-PACIFIC
SERIES: PLYTANIUM SIDING
NOTES: REVERSE BOARD BATTEN W/ 12" O.C. SPACING

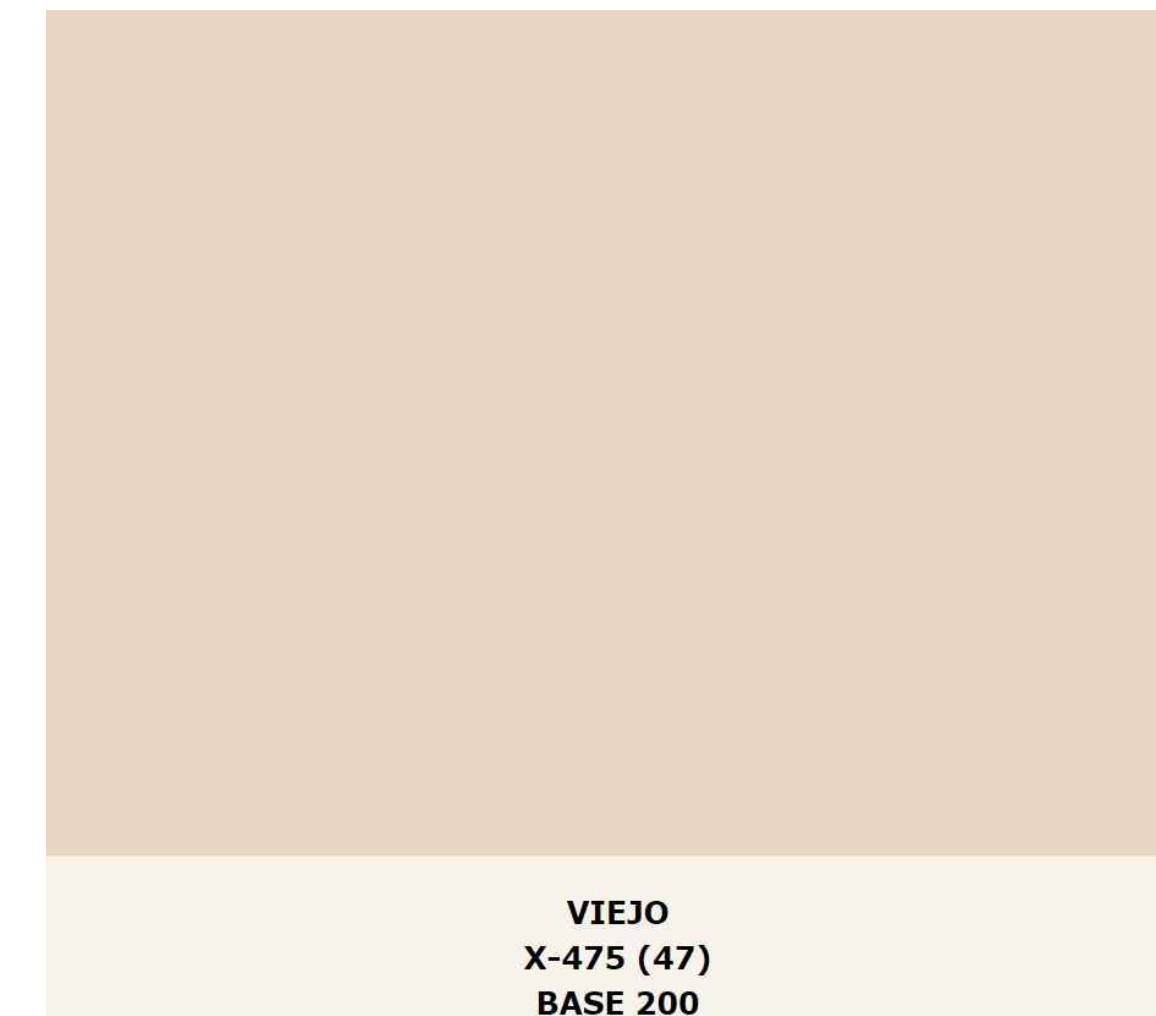
ROOFING MATERIAL



Classic Red

COLOR: CLASSIC RED
SERIES: ARROWLINE SHAKE STEEL ROOFING
MANUFACTURER: EDSCO
WEBSITE: edcoproducts.com

STUCCO

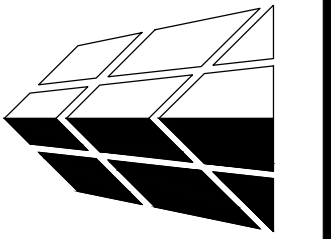


VIEJO
X-475 (47)
BASE 200

COLOR: VIEJO
MANUFACTURER: LA HABRA
BASE NUMBER: X-475 (47)
TEXTURE: 16/20 SAND FLOAT

NOTE:
ALL COLORS SPECIFIED ON THIS PAGE
ARE REPRESENTATIVE OF THE EXISTING
BUILDING AND MAY NOT MATCH THE
FINAL PRODUCT. THE OWNER OR
CONTRACTOR MAY CHOOSE TO USE A
COLOR/FINISH THAT MORE CLOSELY
MATCHES THE EXISTING BUILDING

HEADY DESIGN INC.
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Email: hheady@headydesign.com



FARM MARKET PLAZA
14058 REDLANDS BLVD
MORENO VALLEY, CA 92555

MATERIAL SAMPLE BOARD

Rev. #	Date	Revision Description

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JOB NO: FMG-001
DRAWN BY: **BM**
DATE: 4/23/2021
SCALE:

DRAWING:
MS1

STANDARD GRADING NOTES:

- 1. ALL WORK SHALL CONFORM TO THE CITY OF MORENO VALLEY GRADING REGULATIONS... 2. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE LOCATION OF ALL UTILITIES OR STRUCTURES ABOVE OR BELOW GROUND... 3. ADJACENT STREETS ARE TO BE CLEANED DAILY OF ALL DIRT AND DEBRIS THAT ARE THE RESULT OF OPERATION... 4. DUST SHALL BE CONTROLLED BY WATERING OR OTHER APPROVED METHODS... 5. HOURS OF OPERATION ARE 7:00AM-6:00PM MONDAY-FRIDAY, SATURDAYS, BY PRIOR APPOINTMENT ONLY, 7:00AM - 3:00 PM (INDUSTRIAL/COMMERCIAL), 8:00AM- 4:00PM (RESIDENTIAL). NO WORK ON SUNDAY OR PUBLIC HOLIDAYS WITHOUT PRIOR CITY APPROVAL... 6. THE CITY PUBLIC WORKS DEPARTMENT SHALL BE CONTACTED AT (951) 413-3120 TO SCHEDULE A PRE-GRADING MEETING 48 HOURS PRIOR TO BEGINNING OF GRADING... 7. ALL GRADING SHALL BE COMPLETED UNDER THE SUPERVISION OF A REGISTERED SOILS ENGINEER OF RECORD IN CONFORMANCE WITH RECOMMENDATIONS OF THE PRELIMINARY SOILS INVESTIGATION... 8. TWO SETS OF THE FINAL SOILS REPORT SHALL BE SUBMITTED TO THE ENGINEERING DEPARTMENT FOR REVIEW AND APPROVAL PRIOR TO THE ISSUANCE OF A BUILDING PERMIT... 9. ALL SLOPES SHALL BE A MAXIMUM OF 2:1, CUT OR FILL, UNLESS OTHERWISE RECOMMENDED BY REGISTERED SOILS ENGINEER AND APPROVED BY THE CITY ENGINEER... 10. ALL PADS AND SWALES SHALL SLOPE A MINIMUM OF 1% TO STREET OR DRIVES... 11. ALL TRENCH BACKFILLS SHALL BE TESTED AND CERTIFIED BY THE SOILS ENGINEER OF RECORD TO NOT LESS THAN 90% MAXIMUM DENSITY AS DETERMINED BY A.S.T.M. SOIL COMPACTION TEST D1557... 12. SEPARATE PERMITS SHALL BE REQUIRED FOR ANY IMPROVEMENT WORK WITHIN THE PUBLIC RIGHT-OF-WAY... 13. CUT SLOPES GREATER THAN 5 FEET IN VERTICAL HEIGHT, AND FILL SLOPES GREATER THAN 3 FEET IN VERTICAL HEIGHT SHALL BE PLANTED WITH APPROVED GROUND COVER OR OTHER APPROVED SLOPE EROSION CONTROL METHOD TO PROTECT SLOPE FROM EROSION AND INSTABILITY IN ACCORDANCE WITH THE GRADING REGULATIONS... 14. SEPARATE PERMITS FROM THE BUILDING DEPARTMENT SHALL BE REQUIRED FOR ALL WALLS AND FENCES... 15. ALL SLOPES ADJACENT TO THE PUBLIC RIGHT-OF-WAY SHALL BE SET BACK 2 FEET IF HEIGHT IS LESS THAN 10 FEET, AND 3 FEET IF HEIGHT IS GREATER THAN 10 FEET... 16. DAMAGED OR ALTERED PUBLIC IMPROVEMENTS SHALL BE REPAIRED OR REPLACED AS REQUIRED BY THE CITY ENGINEER... 17. AN "AS-BUILT" GRADING PLAN SHALL BE SUBMITTED AT THE COMPLETION OF WORK, AND PRIOR TO THE ISSUANCE OF THE OCCUPANCY PERMIT... 18. CERTIFICATION BY THE RCE OF RECORD THAT THE ROUGH GRADING SOIL COMPACTION HAS BEEN COMPLETED PER ITEMS 7, 8 AND 11 AND THE SITE CONFORMS TO THIS PLAN AS TO LINE AND GRADE SHALL BE REQUIRED PRIOR TO ISSUANCE OF BUILDING PERMIT... 19. THE R.C.E. OF RECORD SIGNING THESE PLANS IS RESPONSIBLE FOR ASSURING THE ACCURACY AND ACCEPTABILITY OF THE DESIGN HEREON... 20. ALL IMPORTED SOIL SHALL HAVE A CERTIFICATE GIVEN TO THE CITY ENGINEER STATING THAT THE SOIL IS FREE FROM CONTAMINANTS BEFORE SOIL IS UNLOADED.

I HEREBY STATE THAT THIS PLAN WAS PREPARED UNDER MY SUPERVISION AND THAT IT CONFORMS TO THE LATEST EDITION OF THE CALIFORNIA BUILDING CODE (C.B.C.) AS MODIFIED BY CITY OF MORENO VALLEY ORDINANCES, THE INTERIM GUIDELINES, AND THE PRELIMINARY SOILS REPORT PREPARED FOR THIS PROJECT.

BRIAN R. LOWELL, R.C.E. 74550 DATE

STANDARD GENERAL IMPROVEMENT NOTES:

- 1. ALL WORK CALLED FOR ON THE PLANS SHALL BE IN COMPLIANCE WITH CURRENT CITY STANDARD PLANS ADOPTED BY THE CITY COUNCIL... 2. A CONSTRUCTION PERMIT MUST BE OBTAINED FROM THE LAND DEVELOPMENT DIVISION COUNTER BY THE CONTRACTOR PRIOR TO GRADING AND/OR CONSTRUCTION WORK OF ANY TYPE WITHIN THE PUBLIC RIGHT-OF-WAY... 3. AN ENCROACHMENT PERMIT IS REQUIRED IN ALL CASES WHERE WORK WILL INTERFERE WITH EITHER VEHICULAR OR PEDESTRIAN TRAFFIC... 4. CITY INSPECTION OF THE WORK CALLED FOR ON THE PLANS SHALL NOT IN ANYWAY RELIEVE THE CONTRACTOR AND/OR THE DEVELOPER OF THEIR OBLIGATION TO PERFORM THE WORK IN COMPLIANCE WITH THE PLANS... 5. ANY ALTERATIONS OR VARIANCES FROM THE PLANS, EXCEPT MINOR ADJUSTMENTS IN THE FIELD TO MEET EXISTING CONDITIONS, SHALL BE REQUESTED IN WRITING AND MAY NOT BE INSTITUTED UNTIL APPROVED BY THE CITY ENGINEER OR DESIGNATED REPRESENTATIVE ACTING SPECIFICALLY ON HIS/HER INSTRUCTIONS... 6. THE GRADING AND/OR IMPROVEMENT PLANS ARE APPROVED FOR A PERIOD OF TWO (2) YEARS FROM THE DATE SIGNED BY THE CITY ENGINEER... 7. ALL ELEVATIONS SHOWN ON THE PLAN ARE ESTABLISHED BY LOCAL BENCHMARK SURVEY MONUMENTS SHALL BE PROTECTED IN PLACE... 8. QUANTITIES AS SHOWN ON THE PLAN ARE ESTIMATED AND THE CONTRACTOR IS ADVISED THAT ALL FINAL QUANTITIES OF MATERIAL AND WORK IN PLACE MAY BE SOMEWHAT GREATER OR LESS THAN THOSE INDICATED ON THE PLANS... 9. CONCRETE GUTTERS, ALLEY APPROACHES, DRIVEWAYS AND OTHER CONCRETE ITEMS SUBJECT TO VEHICULAR TRAFFIC SHALL BE BARRICADED WITH NO VEHICULAR TRAFFIC PERMITTED FOR A PERIOD NO LESS THAN SEVEN DAYS FOLLOWING THE PLACEMENT OF SAID CONCRETE ITEM(S)... 10. IRRIGATION LINE WITHIN ANY CITY STREET SHALL HAVE A THIRTY INCH MINIMUM COVER FROM FINISH SURFACE UNLESS SAID IRRIGATION LINE IS ENCASED IN CONCRETE OR BEDDED IN A SPECIAL CONCRETE CRADLE... 11. THE CONTRACTOR SHALL OPERATE IN A MANNER COMPLIANT WITH ALL APPLICABLE SECTIONS OF THE MUNICIPAL CODE AND COMPLIANT WITH ALL APPLICABLE CITY COUNCIL RESOLUTIONS... 12. THE LOCATION OF UNDERGROUND UTILITY OR IRRIGATION LINES AS SHOWN ON THE PLANS, IS APPROXIMATE, AND SINCE THE ACTUAL LOCATION MAY BE SOMEWHAT DIFFERENT FROM THAT SHOWN, THE CONTRACTOR IS REQUIRED TO CONTACT THE INTERESTED UTILITY OR WATER COMPANY BEFORE EXCAVATING IN THE VICINITY OF ANY SUCH LINES... 13. PARKWAY TREES INSTALLED BY THE DEVELOPER SHALL BE PLANTED AND MAINTAINED IN COMPLIANCE WITH THE APPROPRIATE CITY STANDARD... 14. ALL STREET NAME AND TRAFFIC REGULATORY SIGNS INDICATED ON THE PLANS WILL BE INSTALLED BY THE DEVELOPER IN ACCORDANCE WITH THE APPROPRIATE CITY STANDARDS... 15. ALL STREET LIGHTS INDICATED ON THE PLANS SHALL BE INSTALLED BY THE LOCAL ELECTRIC UTILITY COMPANY... 16. AN APPROVED WEED KILLER SHALL BE APPLIED TO THE PREPARED BASE PRIOR TO ASPHALT PAVING IN ALL AREAS WHERE THERE IS ANY EVIDENCE OF HUMUS OR ORGANIC MATERIAL PRESENT IN THE BASE... 17. PROVISIONS SHALL BE MADE BY THE CONTRACTOR FOR CONTRIBUTORY DRAINAGE AT ALL TIMES... 18. WHEN APPLICABLE, ALL ANTI-GRAFFITI COATING SHALL BE VITROCEM HI-BUILD GRAFFITI GLAZED COATING FOR CONCRETE BLOCK OR AN EQUAL APPROVED BY THE CITY ENGINEER... 19. HOURS OF OPERATION ARE 7:00AM - 7:00PM MONDAY-FRIDAY, SATURDAYS, BY PRIOR APPOINTMENT ONLY, 8:00AM-4:00PM (RESIDENTIAL). NO WORK ON SUNDAY OR PUBLIC HOLIDAYS WITHOUT PRIOR CITY APPROVAL.

PARKING ANALYSIS

Table with columns: BUILDING TYPE, BUILDING SQUARE FOOTAGE, PARKING RATIO, REQUIRED PARKING. Rows include Existing Commercial, Proposed Commercial, Proposed Restaurant, Proposed Gas Station. Summary: TOTAL REQUIRED PARKING STALLS = 54 STALLS, TOTAL PARKING STALLS PROVIDED = 54 STALLS.

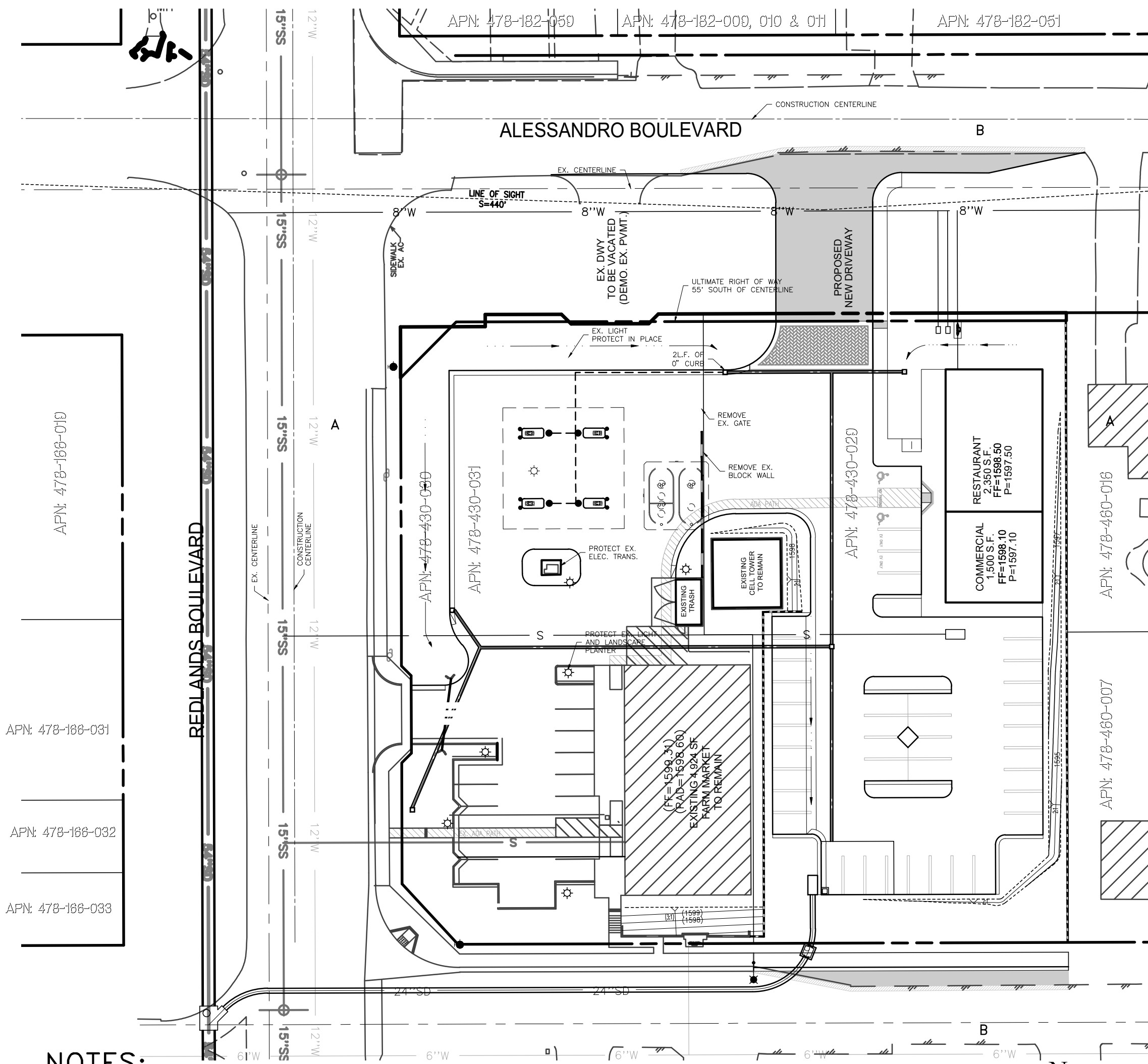
BASIS OF BEARING

THE BASIS OF BEARINGS FOR THIS MAP IS THE CENTERLINE OF REDLANDS BOULEVARD AS SHOWN ON PARCEL MAP DIVIDING LOTS 1-8 IN BLOCK 48 OF THE MAP OF MORENO, AS FILED IN BOOK 4, PAGE 97, R.V. CO. AND BEING N 00°10'20" W.

BENCHMARK

RIVERSIDE COUNTY MONUMENT "M-40-4 RESET" ELEV. = 1588.421 DESCRIPTION: BRASS DISC IN CONCRETE POST, STAMPED "M-40-4 RESET 1976". LOCATED: SE CORNER OF NASON ST. AND ALESSANDRO BLVD., 56.00 FEET EAST OF CENTERLINE OF NASON ST.; 48 FEET SOUTH OF ALESSANDRO BLVD.

PLOT PLAN PEN19-0057 14058 REDLANDS BOULEVARD CITY OF MORENO VALLEY



NOTES:

- 1. EXISTING LAND USE: ON-SITE: COMMERCIAL, NORTH: COMMERCIAL, SOUTH: RESIDENTIAL (R3), EAST: RESIDENTIAL (R3), WEST: COMMERCIAL. 2. PROPOSED LAND USE: COMMERCIAL DEVELOPMENT. 3. EXISTING GENERAL PLAN LAND USE DESIGNATION: COMMERCIAL. 4. EXISTING ZONING: GC GENERAL COMMERCIAL. 5. ASSESSOR PARCEL NUMBERS: 478-430-029, 478-430-030 AND 478-430-031. 6. THOMAS GUIDE REFERENCE: RIVERSIDE/SAN BERNARDINO COUNTIES, PUBLISHED 2004 PAGE: 688, GRID C-7. 7. TOWNSHIP: SECTION 34, TOWNSHIP 2 SOUTH, RANGE 3 WEST. 8. TOTAL GROSS AREA: 2.6 AC. 9. WATER SERVICE PROVIDED BY: EASTERN MUNICIPAL WATER DISTRICT. 10. SEWER SERVICE PROVIDED BY: EASTERN MUNICIPAL WATER DISTRICT. 11. GAS SERVICE PROVIDED BY: SOUTHERN CALIFORNIA GAS COMPANY. 12. ELECTRIC SERVICE PROVIDED BY: MORENO VALLEY ELECTRIC UTILITY. 13. TELEPHONE SERVICE PROVIDED BY: AT&T. 14. FIBER OPTIC CABLE PROVIDED BY: AT&T. 15. REFUSE PROVIDED BY: WASTE MANAGEMENT OF THE INLAND EMPIRE. 16. THE PROJECT IS LOCATED WITHIN THE MORENO VALLEY UNIFIED SCHOOL DISTRICT. 17. THE PROJECT SITE IS LOCATED WITHIN ZONE X, AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN PER FLOOD INSURANCE RATE MAP NUMBER 06065C0770G, EFFECTIVE DATE AUGUST 28, 2008. 18. PROPOSED DEVELOPMENT IS IN CONFORMANCE WITH THE APPROVED WQMP AND DRAINAGE REPORT. 19. SMOKE DETECTORS SHALL COMPLY WITH U.B.C. SECTION 310 1997 EDITION. 20. COMMERCIAL FIRE SPRINKLERS SHALL BE INSTALLED PER 2016 CALIFORNIA FIRE CODE, 2016 CALIFORNIA RESIDENTIAL CODE, AND NFPA SECTION 13, ET. AL.

LEGAL DESCRIPTION:

THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE CITY OF MORENO VALLEY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA AND IS DESCRIBED AS FOLLOWS: PARCEL 1: LOTS 1, 2, 3, 4, 13, 14 AND 15, IN BLOCK 41, OF THE TOWN OF MORENO, IN THE CITY OF MORENO VALLEY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA AS PER MAP RECORDED IN BOOK 11, PAGE(S) 19, OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAN BERNARDINO COUNTY. ALSO TOGETHER WITH THAT PORTION OF AN UNNAMED ALLEY LYING BETWEEN THE WESTERLY LINE OF HOTCHKISS STREET, AND THE NORTHERLY PROLONGATION OF THE WESTERLY LINE OF LOT 15 BY A RESOLUTION ABANDONING HIGHWAY RECORDED MARCH 11, 1970 IN OFFICIAL RECORDS AS INSTRUMENT NUMBER 23196. PARCEL 2: LOT 8, IN BLOCK 41, OF THE TOWN OF MORENO, IN THE CITY OF MORENO VALLEY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 11, PAGE(S) 19, OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAN BERNARDINO COUNTY. PARCEL 3: LOT 5, 6, 7, 9, 10, 11 AND 12 IN BLOCK 41, OF TOWN OF MORENO, IN THE CITY OF MORENO VALLEY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AS SHOWN BY MAP ON FILE IN BOOK 1, PAGE 19 OF MAPS IN THE THE OFFICE OF THE COUNTY RECORDER OF SAN BERNARDINO COUNTY, CALIFORNIA. AND BEING A PORTION OF THE SAME PROPERTY CONVEYED TO PARMJIT SINGH AND SHINDER KAUR, HUSBAND AND WIFE AS JOINT TENANTS FROM FORREST LEROY MEARES AND EVELYN LOUISE MEARES, TRUSTEES OF THE AMENDED AND RESTATED FORREST LEROY MEARES REVOCABLE TRUST DATED FEBRUARY 8, 1994 BY GRANT DEED DATED NOVEMBER 15, 2004 AND RECORDED FEBRUARY 17, 2005 IN INSTRUMENT NO. 2005-0132072; FURTHER CONVEYED TO SHINDER K. KAUR AND PARMJIT SINGH, HUSBAND AND WIFE AS JOINT TENANTS FROM NICHOLAS V. BRUNO AND LEIGH ANN BRUNO AND WILLIAM VITO BRUNO AND MARY BRUNO, AS TRUSTEE(S) OR ANY SUCCESSOR TRUSTEES OF THE WILLIAM VITO BRUNO AND MARY BRUNO REVOCABLE TRUST DATED SEPTEMBER 8, 2009 BY GRANT DEED DATED MARCH 6, 2012 AND RECORDED MARCH 16, 2012 IN INSTRUMENT NO. 2012-0122514.

OWNER:

PARMJIT SINGH 14058 REDLANDS BLVD. MORENO VALLEY, CA 92555 PH: (951) 500-5510

CIVIL ENGINEER:

WMB & ASSOCIATES 22421 BARTON ROAD, # 125 GRAND TERRACE, CA 92313 PH: (951) 533-1871

SOILS ENGINEER:

LOR GEOTECHNICAL GROUP, INC. 6121 QUAIL VALLEY COURT RIVERSIDE, CA 92507 PH: (951) 653-1760

EMERGENCY CONTACT

IN CASE OF EMERGENCY, CALL: PARMJIT SINGH 24-HOUR PHONE NUMBER: (951) 500-5510

SOURCE OF TOPOGRAPHY

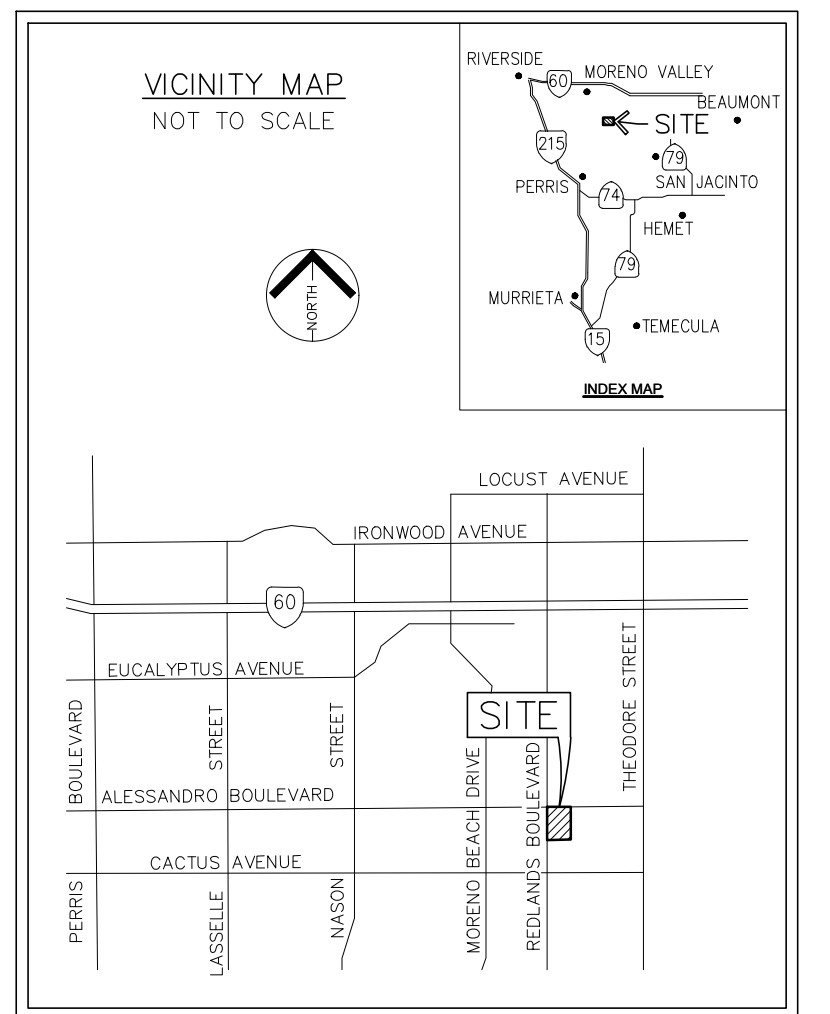
EXISTING GROUND TOPOGRAPHY - FLOWN 2012 RIVERSIDE COUNTY FLOOD CONTROL DISTRICT AS-BUILT GROUND TOPOGRAPHY - FLOWN JANUARY 2017 INLAND AERIAL SURVEYS, INC.

EARTHWORK:

Table with columns: EARTHWORK, QUANTITIES CUT, QUANTITIES FILL. Rows include Rough Grading, Remedial Work, Shrinkage (0%), Subtotal Project Earthwork Quantities, Import Material, Export Material, Total Project Earthwork Quantities.

LEGEND OF ABBREVIATIONS & SYMBOLS

- T.C. TOP OF CURB, F.L. FLOWLINE ELEV., T.G. TOP OF GRATE, G.B. GRADE BREAK, F.G. FINISH GRADE, R.G. ROUGH GRADE, F.S. FINISH SURFACE, INV. INVERT OF DRAIN PAD ELEVATION, F.F. FINISH FLOOR ELEV., G.F.F. GARAGE FINISH FLOOR, B.V.C. BEGIN VERTICAL CURVE, E.V.C. END VERTICAL CURVE, P.I. POINT OF INTERSECTION, E.P. EDGE OF PAVEMENT, T.W. TOP OF WALL ELEV., T.F. TOP OF FOOTING ELEV., D.F. DEEPEEN FOOTING, L. LENGTH, DWY. DRIVEWAY, N.T.S. NOT TO SCALE, P.U.E. PUBLIC UTILITY EASEMENT, DENOTES ENHANCED EXTERIOR HOUSE ELEVATION.



UTILITY AND SERVICE AGENCIES:

- WATER AND SEWER: EASTERN MUNICIPAL WATER DISTRICT PH: (951) 928-3777. ELECTRIC: SOUTHERN CALIFORNIA EDISON PH: (800) 655-4555. GAS: SOUTHERN CALIFORNIA GAS COMPANY PH: (800) 427-2200. TELEPHONE: VERIZON PH: (800) 837-4966. CABLE SERVICE: VERIZON PH: (800) 837-4966. SCHOOL DISTRICT: MORENO VALLEY UNIFIED SCHOOL DISTRICT PH: (951) 571-7500.

EASEMENT NOTES:

THERE IS AN EXISTING PRIVATE LAND LEASE ACCESS AGREEMENT BETWEEN THE LAND OWNER AND VERIZON WIRELESS, AND IS AS FOLLOWS: A NON-EXCLUSIVE RIGHT (THE "RIGHTS OF WAY") FOR INGRESS AND EGRESS, SEVEN (7) DAYS A WEEK TWENTY-FOUR (24) HOURS A DAY, ON FOOT OR MOTOR VEHICLE, INCLUDING TRUCKS OVER OR ALONG A TWELVE-FOOT (12') WIDE RIGHT-OF-WAY EXTENDING FROM THE NEAREST PUBLIC RIGHT-OF-WAY, ALESSANDRO BOULEVARD, TO THE LAND SPACE AND FOR THE INSTALLATION AND MAINTENANCE OF UTILITY WIRES, POLES, CABLES, CONDUITS, AND PIPES OVER, UNDER, OR ALONG ONE OR MORE RIGHTS OF WAY FROM THE LAND SPACE.



PREPARED UNDER THE DIRECTION OF: July 23, 2020 BRIAN R. LOWELL, RCE NO. 74550

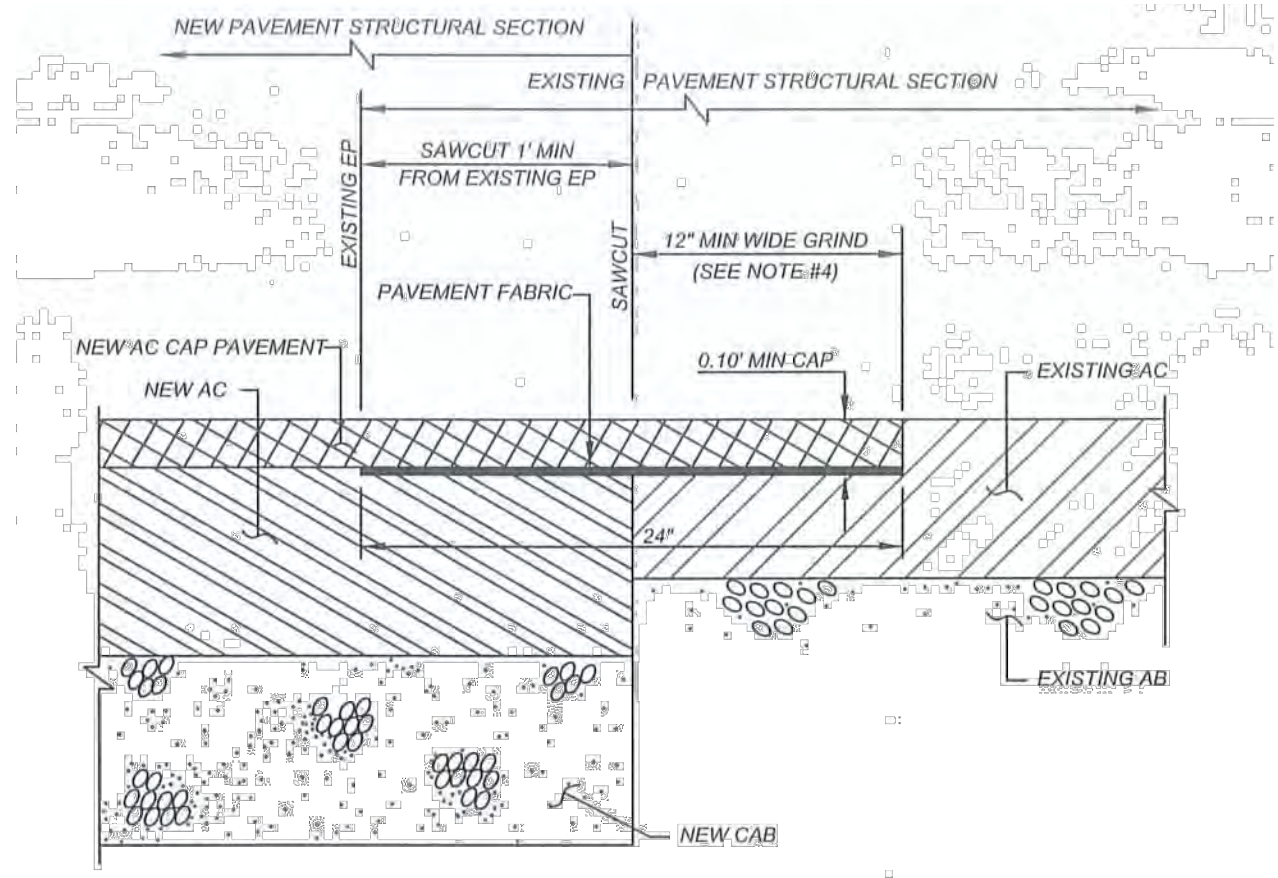
PEN19-0057

PLOT PLAN PEN19-0057 14058 REDLANDS BOULEVARD CITY OF MORENO VALLEY TITLE SHEET

Table with columns: SCALE, DATE, DESIGNED, CHECKED, PLN CK, SHEET, OF SHEETS, DWG. NO. Values: SCALE: AS SHOWN, DATE: July 23, 2020, DESIGNED: BRL, CHECKED: MWB, PLN CK REF: F.B., SHEET 1 OF 3 SHEETS, DWG. NO.

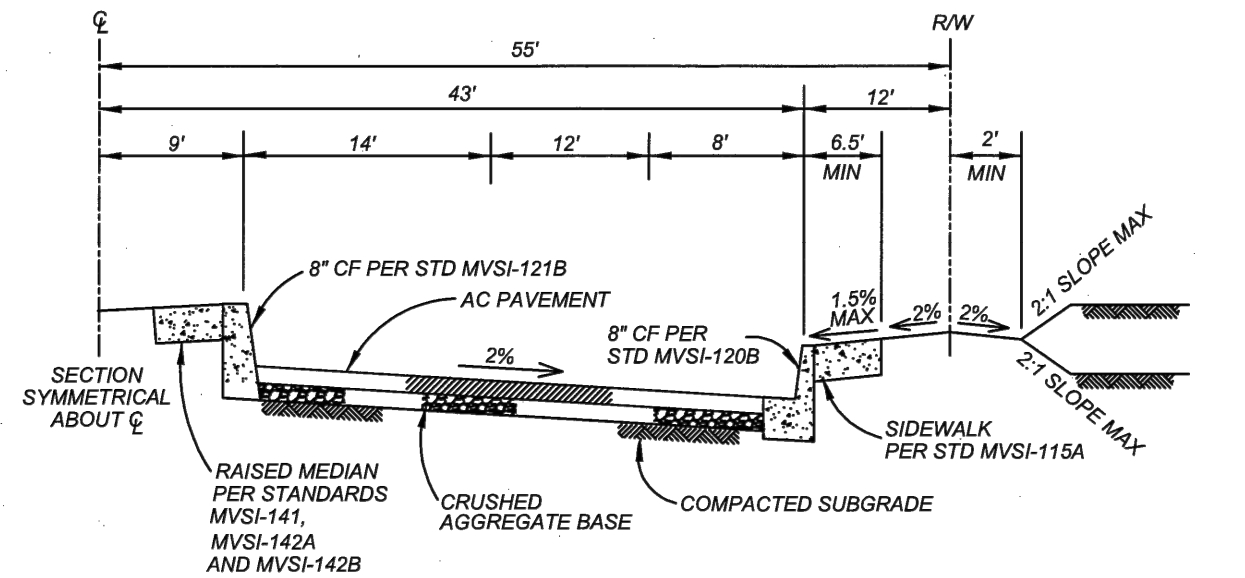
INDEX OF SHEETS:

Table with columns: SHEET NO., DESCRIPTION. Rows: 1 TITLE SHEET & INDEX MAP, 2 DETAIL SHEET, 3 CONCEPTUAL SITE PLAN.

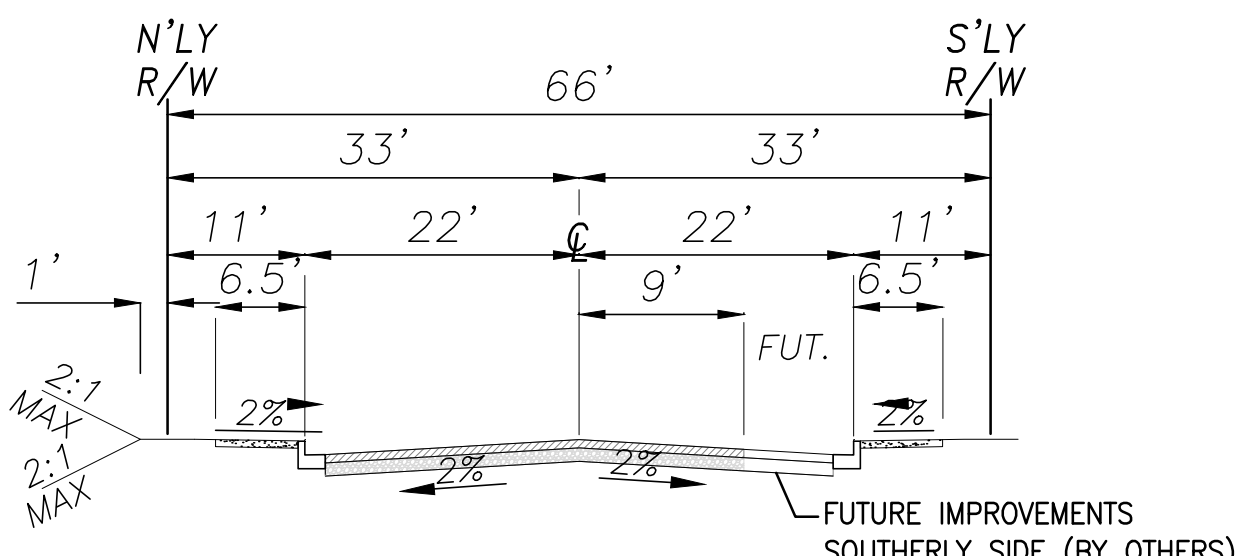


- NOTES:**
- THIS STANDARD SHALL APPLY TO PROJECTS THAT REQUIRE NEW ROADWAY WIDENING OR EXTENSION THAT ADJUTS TO EXISTING ROADWAY, OR AS APPROVED BY THE CITY ENGINEER.
 - THE NEW ROADWAY STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH THE PROJECT'S CITY-APPROVED GEOTECHNICAL REPORT.
 - PAVEMENT FABRIC SHALL BE IN ACCORDANCE WITH THE LATEST VERSION OF THE "GREENBOOK" STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION AND/OR THE PROJECT'S CITY-APPROVED SPECIFICATIONS, OR AS RECOMMENDED BY A GEOTECHNICAL ENGINEER/REGISTERED CIVIL ENGINEER AND APPROVED BY THE CITY ENGINEER.
 - NEW PAVEMENT SHALL BE EXTENDED TO BIKE LANE STRIPING OR NEAREST LANE LINES AS REQUIRED BY THE CITY ENGINEER.

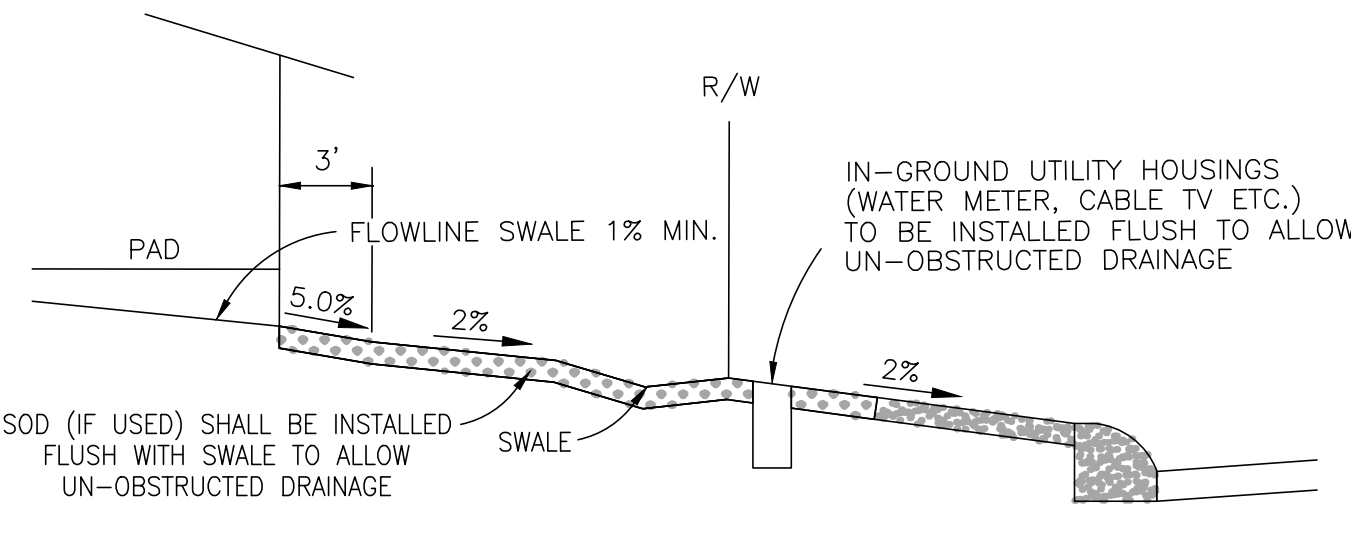
2 PAVEMENT JOINT DETAIL
PER CITY STD 'MVISI-131-0' NOT TO SCALE



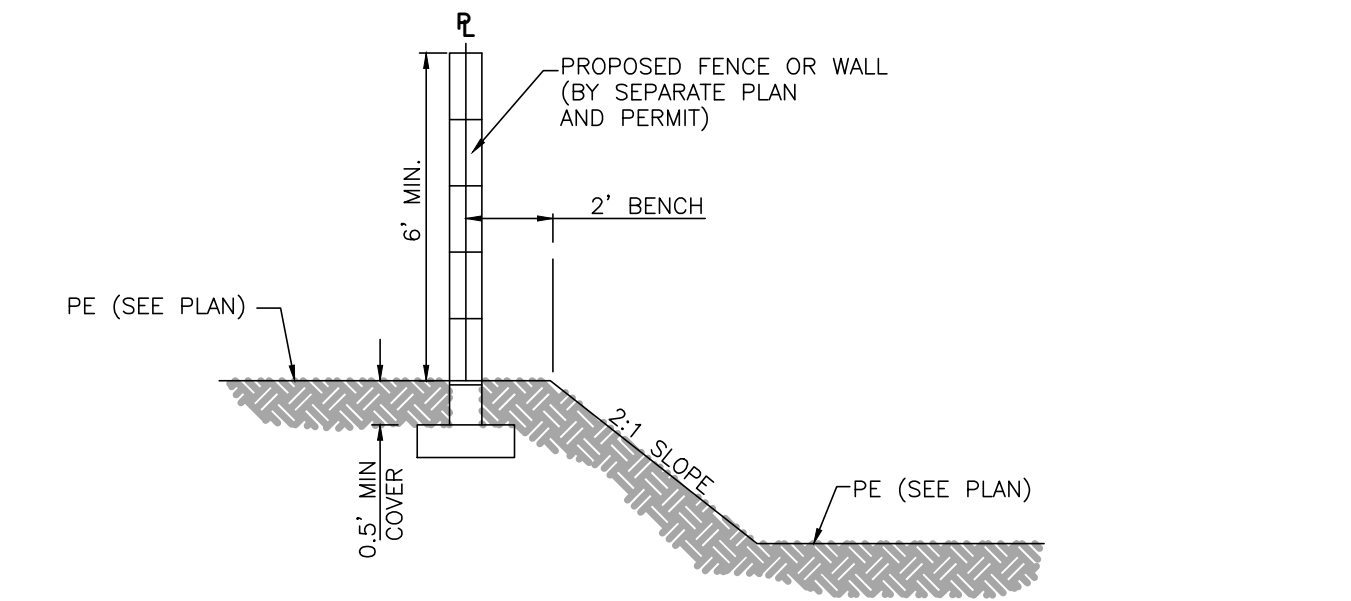
ALESSANDRO BOULEVARD TYPICAL HALF WIDTH SECTION
4-LANE DIVIDED ARTERIAL TYPICAL HALF WIDTH SECTION PER CITY STANDARD MVISI-103A-0 NOT TO SCALE



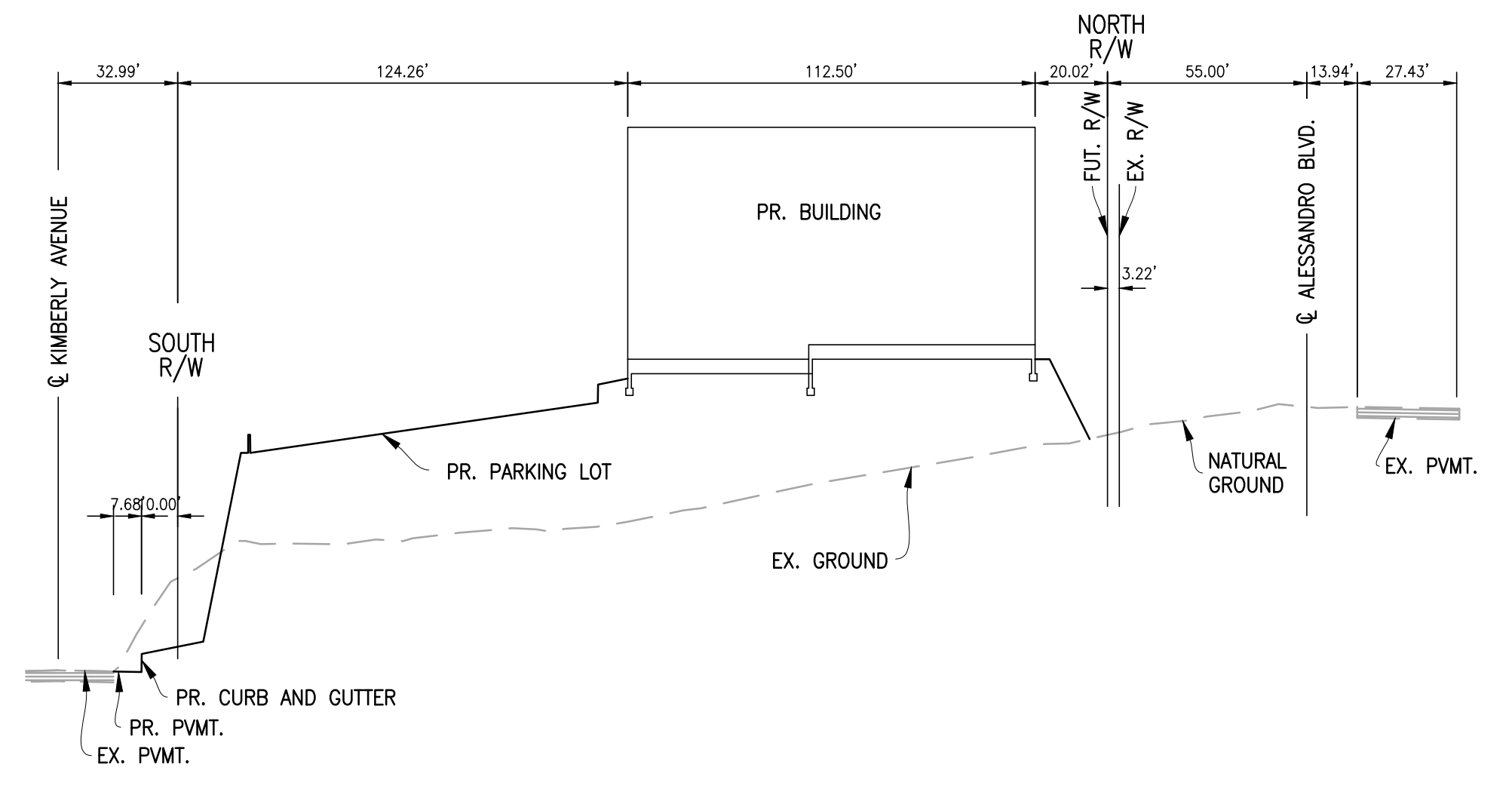
TYPICAL SECTION FOR KIMBERLY AVENUE
66 FOOT WIDE 'COLLECTOR' SECTION PER CITY STANDARD MVISI-106B-0 NOT TO SCALE



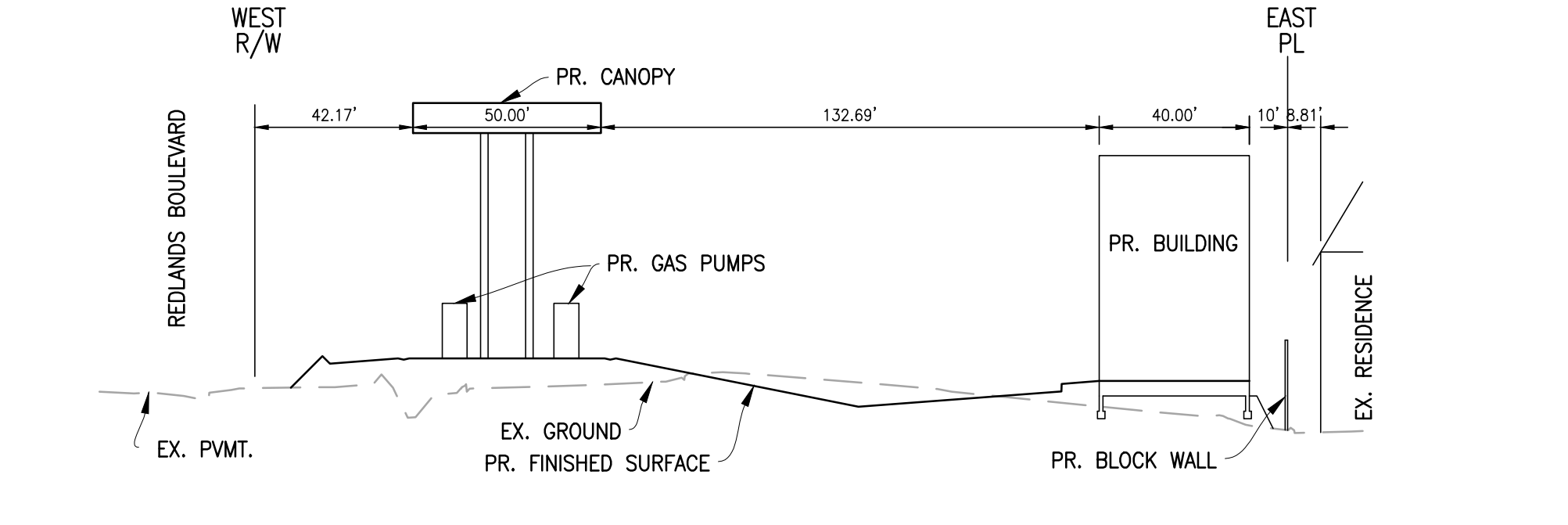
TYPICAL SOD AND UTILITY DETAIL
NOT TO SCALE



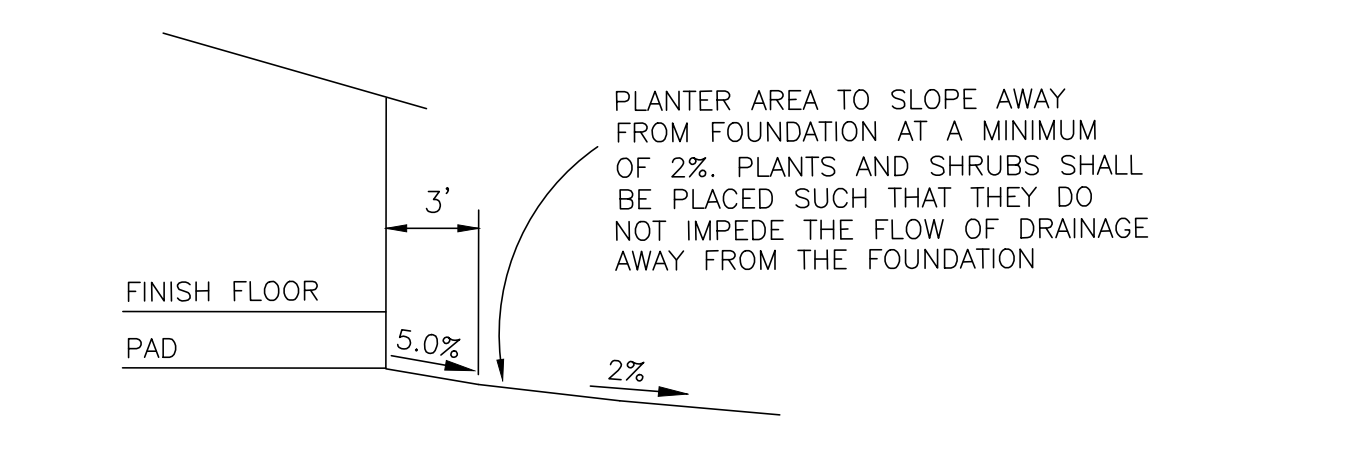
TOP OF SLOPE FENCE AND WALL DETAIL
NOT TO SCALE



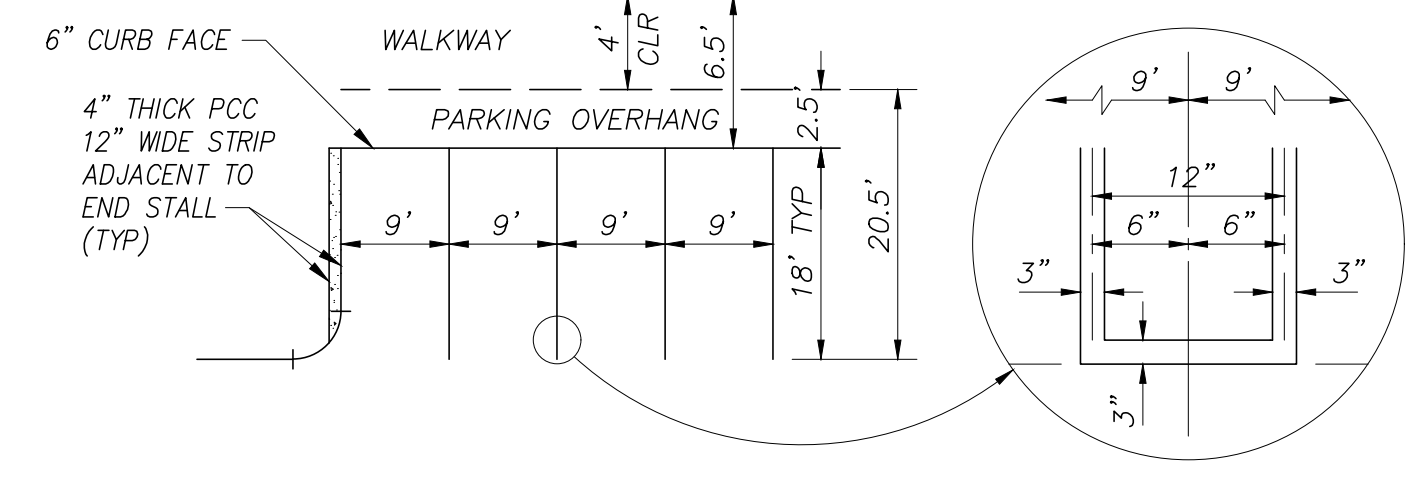
SECTION A - A
NOT TO SCALE



SECTION B - B
NOT TO SCALE

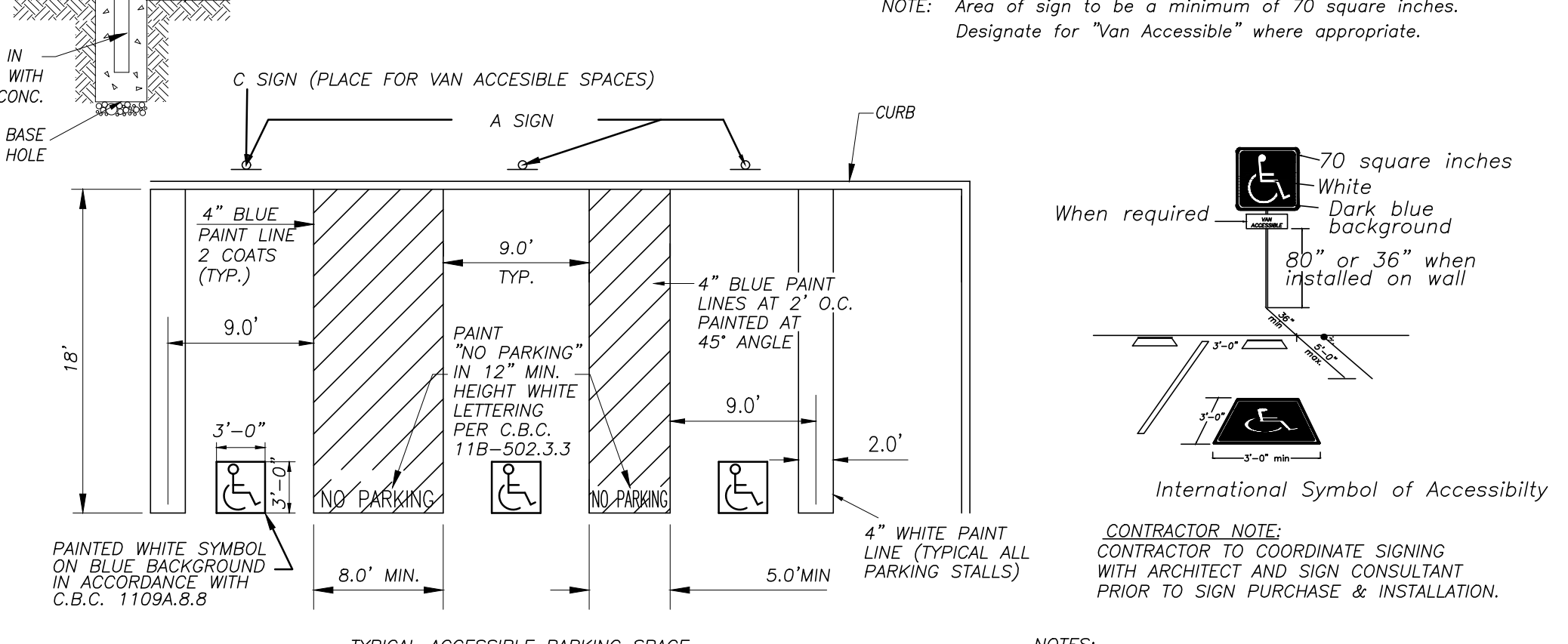
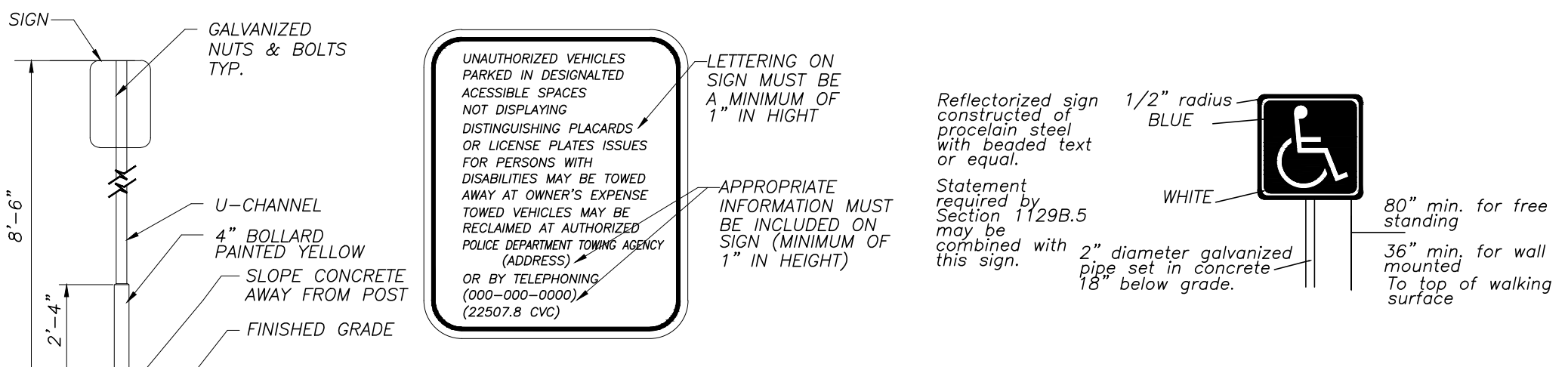


IN GROUND PLANTER DETAIL
NOT TO SCALE



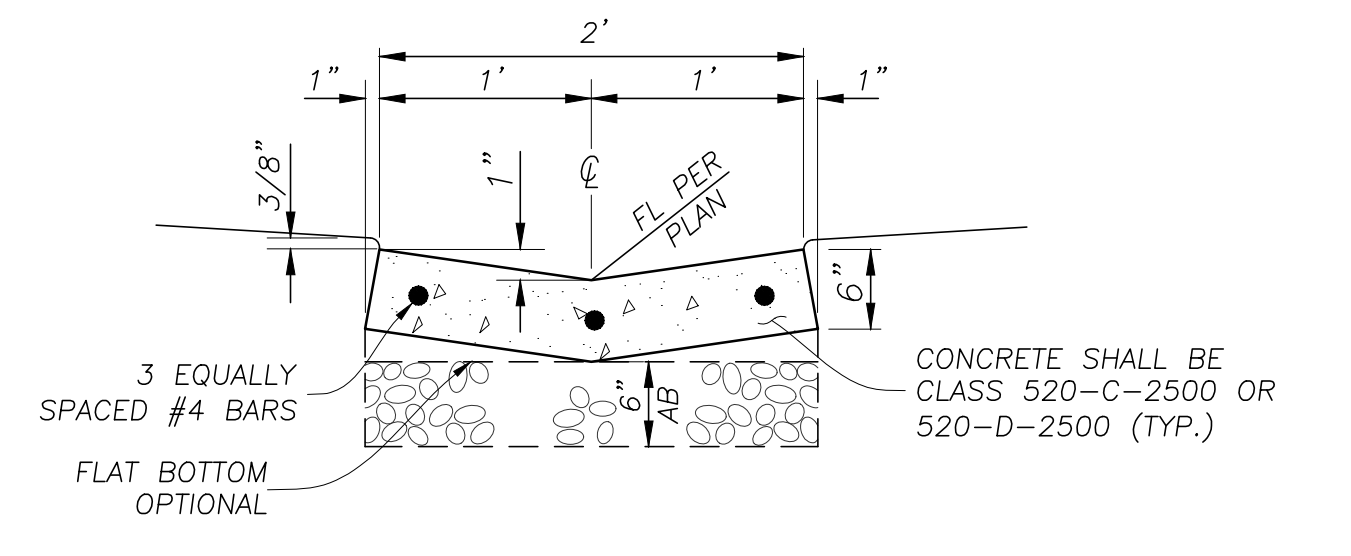
- ALL PARKING STALLS SHALL BE CLEARLY OUTLINED
- MINIMUM STALL WIDTH SHALL BE 9'-0"
- STRIPING SHALL BE 3" WIDE AND SHALL BE PAINTED WITH A NON REFLECTORIZED WHITE PAINT PER CITY OF MORENO VALLEY STANDARD SPECIFICATIONS.
- A 4" THICK PCC 12" WIDE STRIP ADJACENT TO END STALL (TYP) SHALL BE CONSTRUCTED.
- PARKING SPACES SHALL BE DOUBLE STRIPED PER CITY REQUIREMENTS

STANDARD PARKING STALL STRIPING DETAIL
N.T.S.

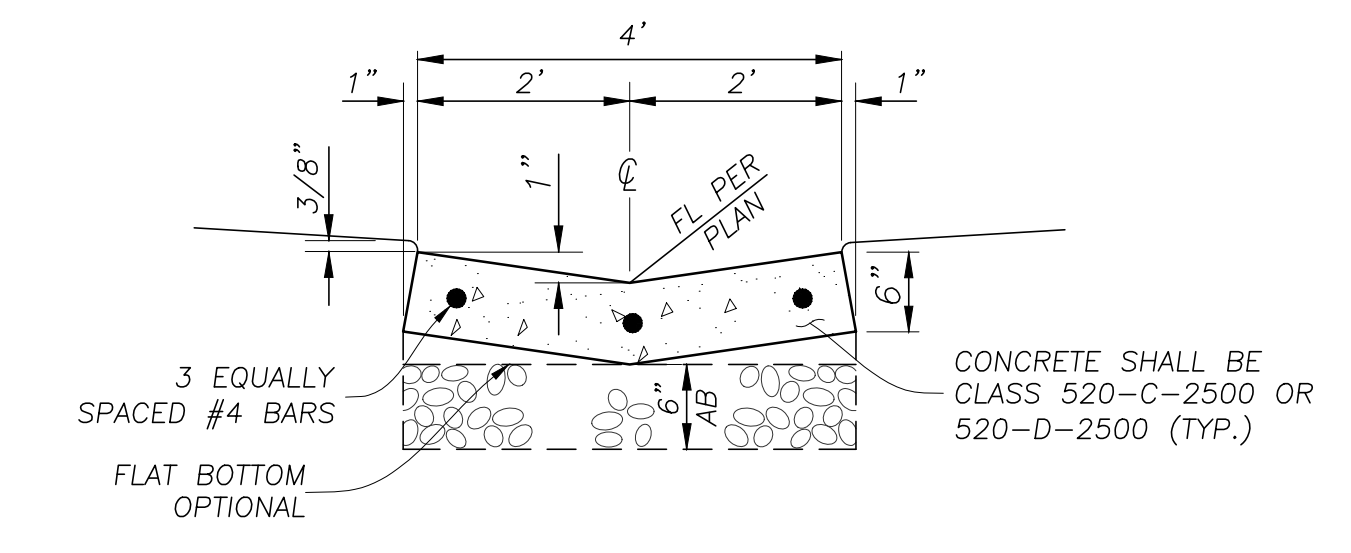


TYPICAL ACCESSIBLE PARKING SPACE
NOT TO SCALE

ADA STRIPING AND SIGN DETAILS
N.T.S.



2' WIDE CONCRETE RIBBON GUTTER



22 4' WIDE CONCRETE RIBBON GUTTER
NOT TO SCALE



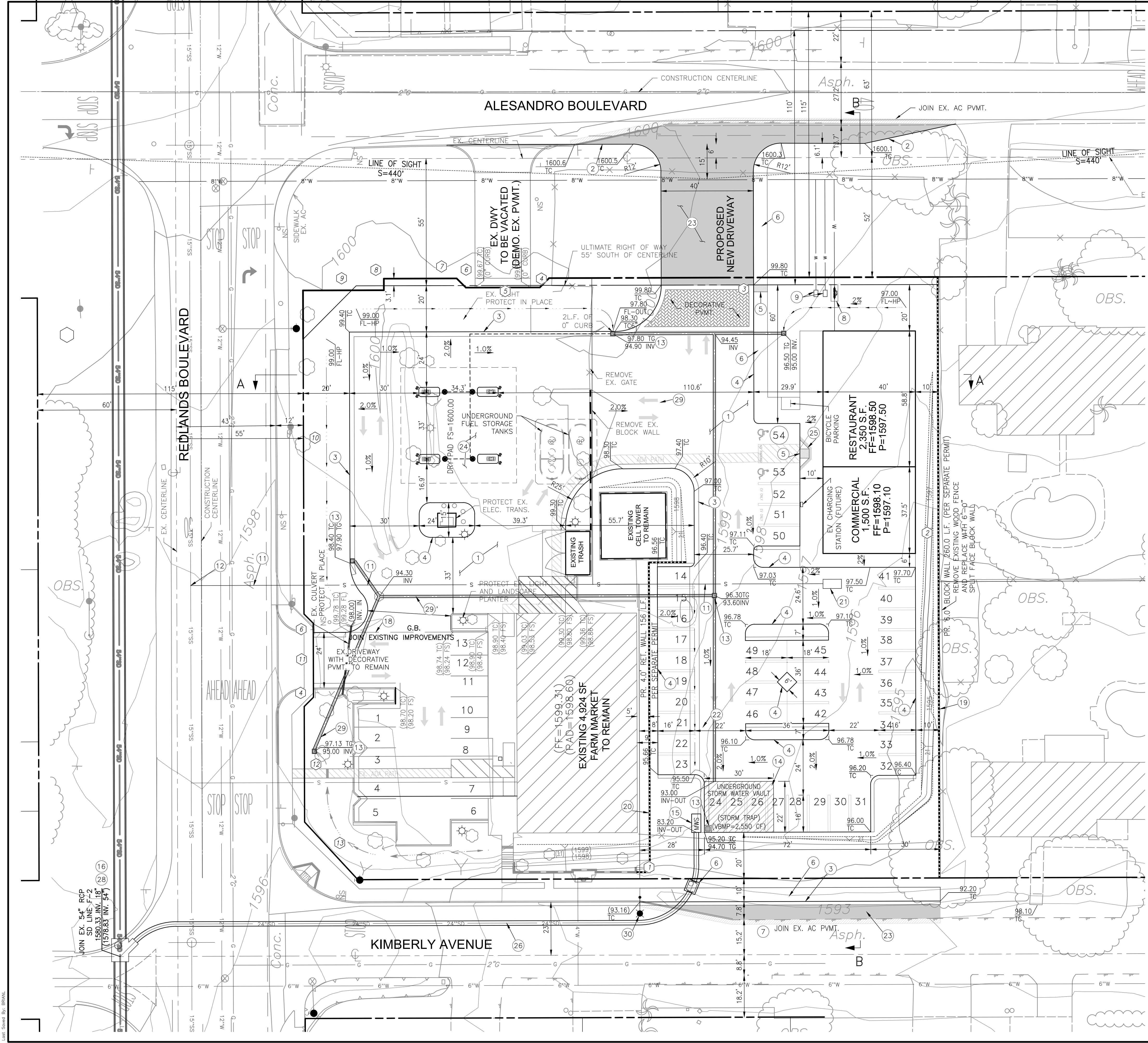
PREPARED UNDER THE DIRECTION OF:
BRIAN R. LOWELL, RCE
NO. 74550

PLOT PLAN PEN19-0057
14058 REDLANDS BOULEVARD
CITY OF MORENO VALLEY
DETAIL SHEET

SCALE: AS SHOWN
DATE: July 23, 2020
DESIGNED: BRL
CHECKED: MWB
PLN CK REF: F.B.

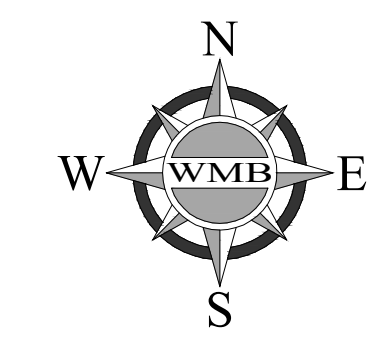
WMB & ASSOCIATES
SURVEYING ENGINEERING PLANNING
22421 BARTON ROAD #125
GRAND TERRACE, CA 92313 (951) 533-1871
SURVEYING/ENGINEERING/PLANNING

SHEET **2**
OF **3** SHEETS
DWG. NO.



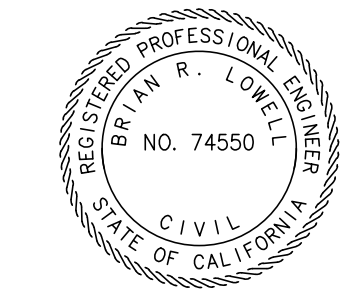
CONSTRUCTION NOTES

- 1 CONSTRUCT 4-INCH A.C. OVER 6-INCH A.B. PER SOILS ENGINEER RECOMMENDATIONS
- 2 CONSTRUCT 6-INCH A.C. CURB PER CITY STANDARD MVS1-124-0
- 3 CONSTRUCT 6-INCH CONCRETE CURB AND GUTTER PER CITY STANDARD MVS1-120A-0
- 4 CONSTRUCT 6-INCH CONCRETE CURB ONLY PER CITY STANDARD MVS1-121A-0
- 5 INSTALL DETECTABLE WARNING SURFACE PER CITY STANDARD MVS1-114C-1
- 6 CONSTRUCT 6.5 FOOT WIDE CONCRETE SIDEWALK PER CITY STANDARD MVS1-115A-0
- 7 JOIN EXISTING A.C. PAVEMENT PER CITY STANDARD MVS1-131-0
- 8 INSTALL 4-INCH DOUBLE CHECK DETECTOR ASSEMBLY, PER EMWD STD. B-657
- 9 INSTALL 1-INCH POTABLE WATER SERVICE AND METER, PER EMWD STD. B-344
- 10 CONNECT TO EXISTING WATER MAIN
- 11 INSTALL 6-INCH SEWER SERVICE, PER EMWD STD SB-176 & SB-177
- 12 CONNECT TO EXISTING SEWER MAIN
- 13 INSTALL 24"x24" INLET WITH TRAFFIC RATED GRATE
- 14 INSTALL UNDERGROUND STORAGE VAULT (BY STORM TRAP)
- 15 INSTALL MODULAR WETLAND SYSTEM (BY BIOCLEAN)
- 16 CONNECT TO EXISTING 54-INCH R.C.P. (R.C.F.C.W.C.D. STORM DRAIN LINE F-2)
- 17 CONSTRUCT 12-INCH WIDE CURB GAP
- 18 JOIN EXISTING CONCRETE PAVEMENT
- 19 CONSTRUCT 6 FOOT TALL BLOCK WALL (OFFSET FROM PROPERTY LINE)
- 20 CONSTRUCT RETAINING WALL
- 21 INSTALL GREASE INTERCEPTOR PER EMWD STANDARDS
- 22 CONSTRUCT 6-INCH THICK CONCRETE RIBBON GUTTER PER DETAIL ON SHEET 2
- 23 CONSTRUCT 6-INCH A.C. OVER 8-INCH A.B. PER SOILS ENGINEER RECOMMENDATIONS
- 24 CONSTRUCT GAS STATION PER OTHERS
- 25 CONSTRUCT ADA ACCESS RAMP
- 26 CONSTRUCT 24-INCH RCP STORM DRAIN PIPE (CLASS IV)
- 27 CONSTRUCT STORM DRAIN MANHOLE
- 28 CONSTRUCT STORM DRAIN JUNCTION STRUCTURE
- 29 INSTALL 12" H.D.P.E. PIPE N-12 DUAL WALL PER ADS SPECIFICATIONS OR APPROVED EQUAL
- 30 INSTALL STREET LIGHT PER CITY OF MORENO VALLEY STANDARD MVLT-400



PROPERTY LINE DATA TABLE

NO.	BEARING/Delta	LENGTH
1	N 89°49'40" E	252.00'
2	N 00°10'20" W	260.00'
3	N 89°49'40" E	168.50'
4	N 44°49'40" E	5.66'
5	N 89°49'40" E	32.00'
6	N 45°10'20" W	5.66'
7	N 89°49'40" E	31.50'
8	N 00°10'20" W	5.00'
9	N 89°49'40" E	35.00'
10	N 00°10'20" W	140.00'
11	N 00°10'20" W	32.00'
12	N 00°10'20" W	49.99'
13	N 42°46'30" W	33.98'



PREPARED UNDER THE DIRECTION OF:
 BRIAN R. LOWELL, RCE
 No. 74550

PLOT PLAN PEN19-0057
14058 REDLANDS BOULEVARD
CITY OF MORENO VALLEY
CONCEPTUAL SITE PLAN

SCALE: AS SHOWN
 DATE: July 23, 2020
 DESIGNED: BRL
 CHECKED: MWB
 PLN CK REF: F.B.

WMB & ASSOCIATES
 SURVEYING ENGINEERING PLANNING
 22421 BARTON ROAD #125
 GRAND TERRACE, CA 92333 (951) 533-1871
 SURVEYING/ENGINEERING/PLANNING

SHEET **3**
 OF 3 SHEETS
 DWG. NO.



A SITE AERIAL



1 SOUTH CORNER OF REDLANDS BLVD. LOOKING NORTH/EAST



2 SOUTH CORNER OF REDLANDS BLVD. LOOKING EAST



3 SOUTH CORNER OF KIMBERLY AVE. LOOKING NORTH/WEST



4 REDLANDS BLVD. LOOKING AT CORNER OF ALESSANDRO BLVD.



5 NORTH CORNER OF REDLANDS BLVD. LOOKING SOUTH



6 NORTH CORNER OF REDLANDS BLVD. LOOKING EAST



7 EAST CORNER OF KIMBERLY AVE. LOOKING WEST



8 EAST CORNER OF KIMBERLY AVE. LOOKING NORTH

HEADY DESIGN INC.
 7365 Caimelian St. Suite 233
 Rancho Cucamonga, CA 91730
 Phone: (909) 581-1202
 Email: Hheady@headydesign.com



FARM MARKET PLAZA
 14058 REDLANDS BLVD
 MORENO VALLEY, CA 92555

PHOTO SHEET

Rev. #	Date	Revision Description

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JOB NO: FMG-001
 DRAWN BY: SR
 DATE: 07/20/2020
 SCALE: AS SHOWN

DRAWING:
PS1

Drawing: 14058 Redlands Blvd. Project: 14058 Redlands Blvd. Drawing: 14058 Redlands Blvd. Date: 07/20/2020
 User: MWT
 Unit: Metric Jul. 20. = 11:43



Farm Market Expansion



Legend

- Public Facilities
 - Public Facilities
 - ★ Fire Stations
- Road Labels
- City Boundary
- Sphere of Influence

Image Source: Nearmap

Notes

Assessor's Parcel Numbers:
478-030-029, -030, and -031

315.5 0 157.74 315.5 Feet

WGS_1984_Web_Mercator_Auxiliary_Sphere

Print Date: 4/26/2021

DISCLAIMER: The information shown on this map was compiled from the City of Moreno Valley GIS and Riverside County GIS. The land base and facility information on this map is for display purposes only and should not be relied upon without independent verification as to its accuracy. Riverside County and City of Moreno Valley will not be held responsible for any claims, losses or damages resulting from the use of this map.

Attachment: Aerial Map (4405 : FARM MARKET EXPANSION)



City of Moreno Valley
 Community Development Department
 Planning Division
 City Hall Council Chamber
 14177 Frederick Street
 Moreno Valley, CA 92553

NOTICE OF PUBLIC HEARING (VIA TELECONFERENCE ONLY)

PURSUANT TO COVID-19 GOVERNOR EXECUTIVE ORDER N-29-20



Notice of Teleconferenced Public Hearing before the Planning Commission of the City of Moreno Valley:

DATE & TIME: May 13, 2021 at 7:00 P.M. **VIA TELECONFERENCE ONLY**

COVID-19 TELECONFERENCE INSTRUCTIONS:

For Teleconference Meeting public participation instructions please agenda at <http://morenovalleyca.ig2.com/Citizens/default.aspx>

PROJECT LOCATION: 14058 Redlands Boulevard

CASE NUMBER(s): PEN19-0057, PEN19-0058 and PEN19-0059

CASE PLANNER: Jeff Bradshaw, Associate Planner (951) 413 3224
jeffreyb@moval.org

<APN>

<Property Owner>

<Street Address>

<City, State, Zip>

Attachment: Public Hearing Notice (4405 : FARM MARKET

NOTICE OF PUBLIC HEARING

1.o

PROPOSAL: Applicant is requesting approval of a Master Plot Plan to expand an existing market by adding a 2,580 square foot Multi-tenant build, with retail and restaurant uses, and a vehicle fueling station.

ENVIRONMENTAL DETERMINATION: The project has been evaluated against the criteria set forth in the California Environmental Quality Act (CEQA) and CEQA Guidelines and staff has determined that a Mitigated Negative Declaration is the appropriate environmental document for the proposed project.

The Draft Initial Study/Mitigated Negative Declaration is being circulated for public review by responsible and trustee agencies and other interested parties for a review period commencing April 23, 2021, through May 13, 2021. The documents can be obtained in electronic form via email by request. The final document may be inspected by appointment at the Community Development Department at 14177 Frederick Street, Moreno Valley, California by calling (951) 413-3206 during normal business hours (7:30 a.m. to 5:30 p.m., Monday through Thursday).

PUBLIC HEARING: All interested parties will be provided an opportunity to submit oral testimony during the teleconferenced Public Hearing and/or provide written testimony during or prior to the teleconferenced Public Hearing. The application file and related environmental documents may be inspected by appointment at the Community Development Department at 14177 Frederick Street, Moreno Valley, California by calling (951) 413-3206 during normal business hours (7:30 a.m. to 5:30 p.m., Monday through Thursday).

COVID-19 – IMPORTANT NOTICES: Please note that due to the COVID-19 pandemic situation, staff will attempt to make reasonable arrangements to ensure accessibility to inspect the aforementioned records. **In addition, special instructions on how to effectively participate in the teleconferenced Public Hearing, as approved by Governor Executive Order N-29-20, will be posted at <http://morenovalleyca.igam2.com/Citizens/default.aspx> and will be described in the Planning Commission agenda.**

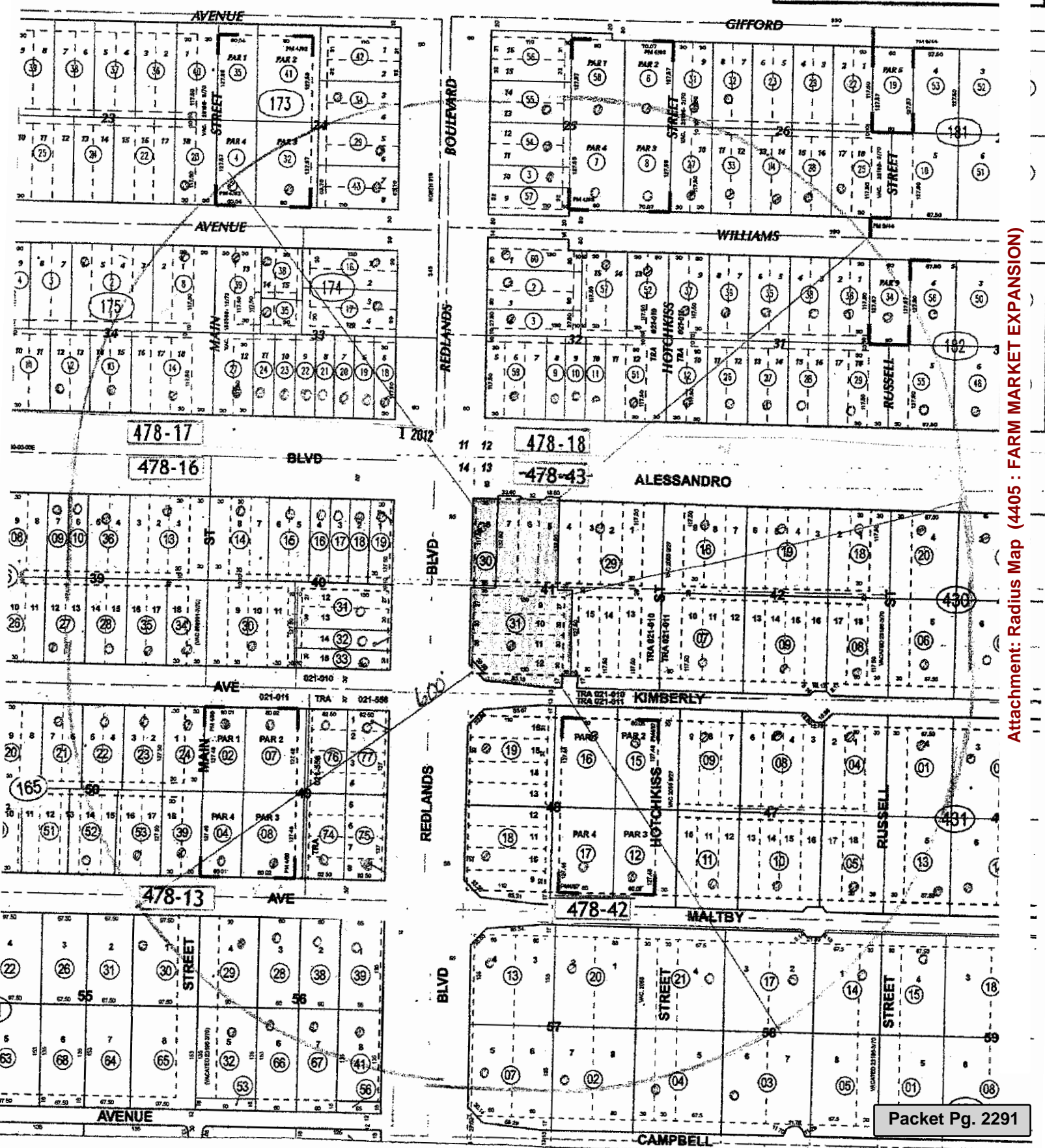
PLEASE NOTE: The Planning Commission may consider and approve changes to the proposed items under consideration during the teleconferenced Public Hearing.

GOVERNMENT CODE § 65009 NOTICE: If you challenge any of the proposed actions taken by the Planning Commission in court, you may be limited to raising only those issues you or someone else raised during the teleconferenced Public Hearing described in this notice, or written correspondence delivered to the Planning Division of the City of Moreno Valley during or prior to, the teleconferenced Public Hearing.

Upon request and in compliance with the Americans with Disabilities Act of 1990, any person with a disability who requires a modification or accommodation in order to participate in a meeting should direct such request to James Verdugo, ADA Coordinator, at 951.413.3350 at least 48 hours before the meeting. The 48-hour notification will enable the City to make reasonable arrangements to ensure accessibility to this meeting.

600' MAP
SITE: 14058 REDLANDS BLVD
APN 478-430-031

OWNERSHIP LISTING SERV
CATHY McDERMOTT
Phone (951) 699-8064
Fax (951) 699-8064
ownershiplistingservice@hotmail.com



Attachment: Radius Map (4405 : FARM MARKET EXPANSION)